جامعة الملك سعود
King Saud University

JOURNAL OF RESEARCH IN LANGUAGE & TRANSLATION

ISSN 1658-8673

Vol. 1 NO. 2
OCTOBER 2021

A bi-annual journal published by
the College of Languages & Translation
King Saud University

Editorial Board

Editor	Abdullah Alasmary, Associate Professor aasmary@KSU.EDU.SA
Editorial Board	Faisal Al-Qahtani, Associate Professor falqahtani@KSU.EDU.SA
	Ghazi Alotaibi, Associate Professor ghalotaibi@KSU.EDU.SA
	Hind Alotaibi, Associate Professor hialotaibi@KSU.EDU.SA
	Syed Hussain, Associate Professor shussain1@KSU.EDU.SA
Assistant to the Editor	Dania Salamah, Assistant Professor dsalamah@KSU.EDU.SA

Editorial Preface

The Editorial Board is so glad to publish the 2nd issue of the Journal of Research in Language and Translation (JRLT). This volume includes four articles. The first paper presents a phonological analysis of the /l/ sound as it is spoken in Najd area. While the second paper probes the relationship between motivation types and metacognitive listening strategies, the third one aims to explore the D-Linking effect on Wh-Extractions from Islands and Non-Islands in L1 and L2 learners of English. The last paper in this volume addresses the inflectional system of person, number, and gender of verbs in Hijazi Saudi Arabic. Taken together, the set of diverse topics explored in this volume attests to the interdisciplinary nature of linguistics and language studies.

The Board members are so humbled by the outpouring support from our readers who, also, have showered us with praise and good wishes. We also would like to thank our team of reviewers who have maintained high ethical and professional standards during the reviewing process. Their opinions and comments have undeniably improved the quality of each manuscript. Readers are greatly encouraged to contact us if they have any suggestions or opinions which will help us improve reviewing and publication processes.

Editor

Table of Contents

Phonological Analysis of /l/ in Different Environments in Najdi Arabic 1-17
Reham Alhammad

The Relationship Between Motivation Types and Metacognitive Listening Strategies: The Case of Adult EFL Students in Saudi Arabia 18-40
Raed Alzahrani

The D-Linking Effect on Wh-Extractions from Islands and Non-Islands in L1 Speakers and L2 Learners of English 41-65
Saad M. Aldosari

An Analysis of the Inflectional System of Person, Number, and Gender of Verbs in Hijazi Saudi Arabic (HSA) 66-84
Maisarah M. Almirabi

Journal of Research in Language & Translation

Issue No. 2 Vol. 1 (2021)

Phonological Analysis of /l/ in Different Environments in Najdi Arabic

Reham Alhammad

Department of English, College of Science and Humanities, Majmaah University, Al-Majmaah, 11952, Saudi Arabia
r.alhammad@mu.edu.sa

Received: 23/9/2020; Revised: 17/2/2021; Accepted: 5/3/2021

الملخص

تبحث هذه الدراسة في الاختلافات الصوتية للصوت لام /l/ في اللكنة العربية النجدية، حيث تدرس نوعين من هذا الصوت أحدهما بلعوميّ [lˤ] والآخر حنكيّ[ɫ]، ويُعنى البحث بدراسة خصائص صوت اللام الذي يلي أو يسبق الحروف اللهويّة [χ,ʁ,q] والصوامت البلعومية [tˤ,sˤ, ðˤ] ومن ثم مقارنة النتائج مع ما ناقشه فيرغسون (١٩٥٦) فيما يتعلق بالمواضع التي يمكن التنبؤ بها للصوت المفخّم [lˤ] في اللغة العربية والذي يأتي قبل أو بعد الصوامت المفخّمة وبعد الأصوات اللهويّة، ولقد أظهرت نتائج الدراسة ١) أن الصامت الحنكي [g] واالصوامت اللهوية، والصوامت البلعومية تنشر سماتها الصوتية لتؤثر على صوت اللام /l/ في اللكنة العربية النجدية، ٢) أن الصوامت اللهويّة و الحنكية هي تنوعات صوتية حرّة ، ٣) يقتصر تأثير انتشار الصفة اللهوية للصوت لام على الصوامت اللهويّة الاحتكاكية فقط دون غيرها محدثةً الصوت [ɫ] وذلك بسبب توسع مخرجها اللهويّ، أما صامت الوقف اللهويّ /q/ فهو لا يؤثر على صوت اللام على خلاف نظيره الحلقي /g/،كما توصلت الدراسة إلى أن الصوامت المفخمة تنشر سماتها البلعومية إلى اليمين واليسار لتؤثر على صوت اللام مما يؤدي إلى تفخيمه [lˤ] ، غير أن هذا الانتشار اختياري.

Journal of Research in Language & Translation

Issue No. 2 Vol. 1 (2021)

Abstract

This study investigates the phonetic variations of lateral /l/ in Najdi Arabic. Two lateral varieties are considered: pharyngealized [lˤ] and velarized [ɫ]. Data of /l/ following and/or preceding uvulars [χ,ʁ,q], and pharyngealized consonants [tˤ,sˤ, ðˤ] are observed. Results are then compared to what has been discussed in Ferguson (1956) regarding the predictable environments for emphatic [lˤ] in Arabic: before or after emphatic consonants, and after uvulars. Results show that: 1) uvulars, velar [g], and pharyngealized consonants spread their features to affect lateral /l/ in Najdi. 2) Uvulars and velars are in free variation, and 3) only fricative uvulars spread uvularization to /l/ resulting in [ɫ]. Uvular stop /q/, on the other hand, does not spread uvularization to laterals, instead its velar counterpart /g/ does. Pharyngealized consonants are found to spread pharyngealization both rightward and leftward to /l/ resulting in [lˤ]. Interestingly, this spread is optional.

Keywords: Najdi Arabic, pharyngealization, phonetic variation, phonology, uvularization

---

The effect of spreading of two important phonological processes; namely pharyngealization and uvularization, on the alveolar lateral approximant /l/ in Najdi Arabic is the main focus of this paper. No study, at least to my knowledge, has been conducted on the effect of pharyngealization and uvularization spread on adjacent consonants, particually laterals in Najdi. This study aims to fill a gap within the study of Arabic Phonology by presenting an analysis of possible environments that can cause such spread in Najdi. The purpose is to document some new and specific features of Najdi Arabic by observing words that include pharyngealized and uvular consonants in their roots.

There has been a heated debate about the distinction between the two phonological processes: pharyngealization and uvularization. As a result, it is important to present a side of the argument and show the agreed upon distinction between the two phonological processes before addressing the main issue of this study.

Some linguists group these processes along with others, such as velarization and glottalization, under the term *Emphasis*. There are many different definitions for emphasis in the literature. A detailed one is found in Lehn (1963):

> Emphasis is the co-occurrence of the first and one or more others of the following articulatory features: (1) slight retraction, lateral spreading, and concavity of the tongue and raising of its back (more or less similar to what has been called velarization), (2) faucal and pharyngeal constriction (pharyngealization), (3) slight lip protrusion or rounding (labialization), and (4) increased tension of the entire oral and pharyngeal musculature resulting in the emphatics being noticeably more fortis than the plain segment. (pp. 30–31)

Moreover, Hoberman (1995) explains that emphasis is found in most Semitic languages including Arabic. He defines emphasis as a phonological feature that is realized sometimes as pharyngealization, glottalization, uvularization, or velarization.

McCarthy (1994), on the other hand, argues that there is a difference between emphatics and pharyngealized consonants. He shows that both emphatics and pharyngealized consonants require a constriction in the upper pharynx, but unlike emphatics, pharyngealized consonants are affected by some back segments (uvulars, such as [q], [χ], and [ʕ]), and thus should be called uvularized.

Similarly, Zawaydeh (1997), in her study of uvularization spread in Ammani-Jordanian Arabic, uses the term *uvularized* consonants to refer to pharyngelized consonants like [sˤ,tˤ,ðˤ] and *uvualrs* to refer to uvular consonants such as [ʁ,χ,q]

One thing that is definite, however, is that both processes; pharyngelization and uvularization, involve a constriction in the pharynx. It is the part where constriction occurs that highlites the difference between the two processes.

Some linguists differenciate between the two categories (namely pharyngealized consonants and uvulars) by observing their effect on adjacent vowels and segments. Specifically, they look at the values of the first and second formants; F1 and F2, of the following vowels and sonorants. They found that pharyngealized consonants cause a drop in the value of F2 in vowels and sonorants in general, and a raise in the value of F1 in the segments that are affected by the spread. Uvulars, on the other hand, were also found to cause a drop in the F2 values of the affected segments, but the drop was weaker compared to the pharyngealization spread effect (Ghazeli, 1977; Herzallah, 1990; Younes, 1983).

Other linguists, show the difference between the two phonological processes by observing the co-occurrence of primary and secondary articulators involved in their

production. Davis (1993,1995) introduces the feature *Retracted Tongue Root* [RTR] that is only found in pharyngealized and uvular consonants. He claims that in pharyngelized consonants, this feature is realized as a secondary feature while in uvulars it is the primary feature.

Al-Ani (2014), Ghazeli (1977), and Herzallah (1990), also address the issue of primary and secondary articulations where they claim that pharyngealized consonants undergo a retraction of the toungue back as a secondary feature accompanying primary articulation somewhere in the vocal tract. Contrary to pharyngealized consonants, uvulars experience a retraction of the toungue root. They also agree that both categories have something in common which is the articulator 'uvula'. This articulator is the secondary articulator for pharyngealized consonants, and the primary one for uvulars.

Due to the involvement of two articlators in the production of pharyngealization and uvularization: the dorsum and the pharynx, various feautures are proposed to account for the difference. Herzallah (1990) suggests the features [DORSAL] and [PHARYNGEAL] to refer to pharyngealization. Other features include [+LOW, +BACK] (Chomsky & Halle, 1968), [+CONSTRICTED PHARYNX] (McCarthy,1986), and [RTR] (*Retracted Tongue Root*) (Davis, 1993,1995).

For the purpose of this study, the feature *pharyngealization spread* is used to describe the allophonic pharyngealized [lˤ] after pharyngealized consonants [tˤ],[sˤ], and [ðˤ], and the feature *uvularization spread* is used to describe the allophonic velarized [ɫ] following or preceding uvular consonants such as [χ],[ʁ] and [q].

Literature Review

Pharyngealized and velarized lateral, [lˤ] and [ɫ], respectively, have been described as allophonic varieties of the phoneme /l/ in the phonology of Classical Arabic and most dialects (Ferguson, 1956)**.** Although, some arguments arose regarding the possibility of treating the pharyngealized lateral as a separate phoneme, the fact that there are expected environments where the pharyngealized sound occurs along with the absence of real minimal pairs, all indicate that [lˤ] is just an allophone of the phoneme /l/ in Najdi. Ferguson (1956) sheds light on three possible environments where the pharyngealized [lˤ] appears: The first environment is when Arabic pharyngealized consonants [sˤ], [dˤ], [tˤ], and [ðˤ] exist in a word. The second environment is associated with the different forms of the word 'God' [ʔalˤlˤah]. The last environment in Ferguson's study is what he describes as an unexpected environment such as with the uvulars [χ, ʁ, q], or in borrowed words. The same environments have been reported in other studies such as in Elshafei (1991) where he observes Modern Standard Arabic and Classical Arabic, as well as in Shar and Ingram (2010) in their study of Asiri, a Saudi dialect.

Interestingly, McCarthy (1994) explains that some segments have a similar emphasis effect, and he describes them as guttural phonemes. These include: pharyngealized consonants [sˤ], [dˤ], [tˤ], [ðˤ], the uvulars [χ], [ʁ], [q], and the velar [g]. This might explain the unexpected environment described by Ferguson (1956) in which pharyngealized [lˤ] occurs after uvulars.

In a description of such phenomenon, Norlin (1985) explains that when pharyngealization occurs, it can spread to adjacent sounds or syllables. He refers to such process as the *feature-spread effect* and concludes that this effect is mostly noticed on following and preceding vowels that are adjacent to the pharyngealized consonant. Moreover, Davis (1993) discusses pharyngealization spread and notes that when a word includes a

pharyngealized phoneme, neighbouring sounds get affected and become pharyngealized too. He further elaborates that dialects differ regarding the extent to which these neighbouring sounds are affected. In his study, he examines Cairene Arabic, a dialect spoken in Egypt, and concludes that when a pharyngealized segment occurs, the entire phonological word is produced as completely pharyngealized.

Moreover, Almasri and Jongman (2004) study the effect of pharyngealization on Arabic vowels and they conclude that such effect cannot be spread to all vowels; instead, it is mostly associated with the central vowel [a] not the other two vowels, [i] and [u], of Arabic. This is compatible with what has been found in Najdi when the three vowels [a], [i], and [u] occurring after pharyngealized consonants were examined and acoustically measured. Results are presented in Figure 1, Figure 2, and Figure 3 in the following section.

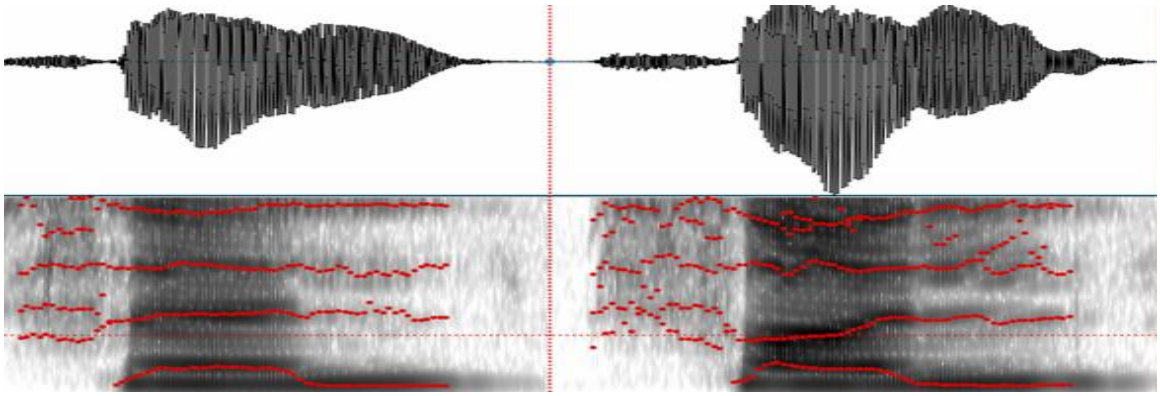
The pharyngealization effect reported in Ferguson (1956) and McCarthy (1994) not only involves the effect of pharyngealization on the central vowel [a], but also on /l/ resulting in [lˤ]. Ferguson (1956) also suggests that the effect of pharyngealization that results in changing the low central vowel [a] to the low back vowel [ɑ] could account for the distinction of [l] and [lˤ] since [ɑ] always precedes the pharyngealized [lˤ]. McCarthy (1994) also includes, in his study, that there is a back variant of [a] when immediately following or preceding the pharyngealized consonants [sˤ], [dˤ], [tˤ], and [ðˤ], the uvulars [χ], [ʁ] and [q], and the velar [g]. Interestingly, these same environments are what have been found to change the lateral /l/ to be emphatic in Najdi.

The Effect of Pharyngealization Spread on Following Vowels [a], [i], and [u]

In an attempt to test the validity of Almasri and Jongman (2004) findings regarding their conclusion that emphasis in Arabic is mostly associated with the central vowel [a], not the other two vowels [i] and [u], I recorded myself producing all three vowels of Najdi [a], [i], and [u] following pharyngealized consonants. A discussion of each vowel is presented below:

Figure 1

The Effect of Plain and Pharyngealized Consonants [s] vs. [sˤ] on the Low Central Vowel [a] on Monosyllabic CˤVC Words: [sal] 'tuberculosis' vs. [sˤal] 'pray'



[sal] [sˤal]

The effect of voiceless pharyngealized alveolar fricative [sˤ] on this particular vowel is very much noticeable on the lowering of its F2 values as shown in the second part of Figure 1. Results show a clear lowering of F2 values when the pharyngealized consonant [sˤ] precedes the vowel [a] in CˤaC. The exact values of all vowels involved are listed in Table 1 below.

Table 1

(F1) and (F2) Values of Monosyllabic Words of Najdi Arabic

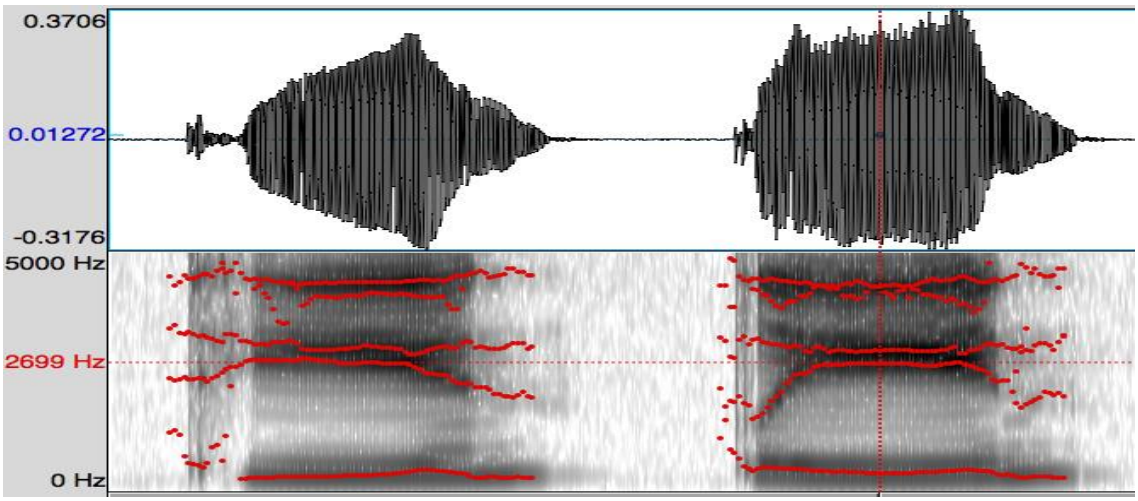
Monosyllabic words	F1(Hz)	F2(Hz)
[sal]	607	2041
[sˤal]	715	1448
[ti:n]	375	2638
[tˤi:n]	436	2651
[tu:b]	496	1130
[tˤu:b]	504	1070

Results support what other linguists conclude in their studies about the effect that emphatic consonants have on adjacent vowels, syllables or sometime the entire word (Almasri & Jongman, 2004; Alosh, 1987; Davis, 1993; Watson, 1999).

Figure 2 and Figure 3 below present minimal pairs of the forms CaC and CuC that are recorded and acoustically measured to examine the effect of emphatic consonants on the adjacent high front and high back vowels, [i] and [u] respectively. Results show that emphasis has no effect on these two vowels as both values of F2 reported are minimally affected.

Figure 2

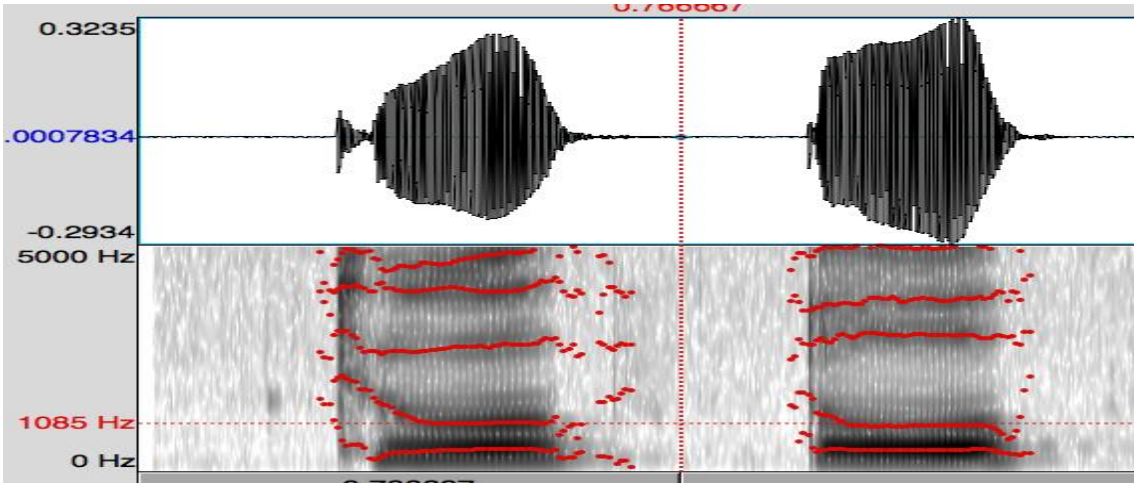
The Effect of Plain and Pharyngealized Consonants [t] vs. [tˤ] on the High Front Vowel [i] in Monosyllabic CˤiC Words: [ti:n] 'figs' vs. [tˤi:n] 'mud'



[ti:n] [tˤi:n]

Figure 3

The Effect of Plain and Pharyngealized Consonants [t] vs. [tˤ] on the High Back Vowel [u] in Monosyllabic CˤuC Words: [tu:b] 'repent' vs. [tˤu:b] 'brick'



[tub] [tˤub]

Although pharyngealization does not spread to affect the adjacent vowels [i] and [u] completely, it is worth noting that the onset of these vowels is minimally affected by this possible spread. In the second part of Figure 2, a drop of F2 values is noticed at the beginning of the vowel onset. Due to the absence of such drop in the first half of the spectrogram where the plain [t] is involved, it is highly suggested that such drop exists as a result of a pharyngealization effect when the pharyngealized [tˤ] precedes the vowel [i]. Note though that such effect does not last long as the F2 resumes its steady status afterwards reflecting no strong effect on this vowel compared to [a].

Similarly, the second part in Figure 3 also shows a pharyngealization effect at the beginning of the vowel onset where a drop of F2 values occurs. However, this drop is relatively weaker compared to the first part of the spectrogram where the plain [t] precedes the high back vowel [u].

Acoustic analysis of these three spectrograms shows that pharyngealization is highly associated with the production of the low back vowel [a], which is similar to what other linguists found. Furthermore, such pharyngealization spread is also noticed on other vowels, but unlike the vowel [a], the effect of pharyngealization on adjacent [i] and [u] is only noticed at the beginning of the vowel onset as a minor lowering of its F2 values, then the F2 resumes its steady status.

Language Inventory

Najdi dialect is one of many other dialects that are spoken in Riyadh, Saudi Arabia, and there are different varieties of Najdi depending on the region where it is spoken. These varieties are Northern Najdi, Central Najdi, and Southern Najdi. Central Najdi spoken by Najdi people residing in Riyadh is the focus of this paper. Najdi consists of twenty-seven consonants whose place and manner of articulation are indicated in the table below:

Table 2

Najdi Consonant Inventory chart [based on Najdi Dialect]

	Bilabial	Labiodental	Dental		Alveolar		Post-alveolar	Palatal	Velar		Uvular		Pharyngeal		Glottal
Plosives	b				t	d			k	g	q				ʔ
Pharyngealized					tˤ										
Nasal	m					n									
Fricative		f	θ	ð	s	z	ʃ				χ	ʁ	ħ	ʕ	h
Pharyngealized				ðˤ	sˤ										
Tap						ɾ									
Lateral						l									
Approximant	w							j		w					

Three emphatic consonants [tˤ] [sˤ], and [ðˤ] along with their plain counterparts [t], [s], and [ð] are found in the inventory of Najdi.

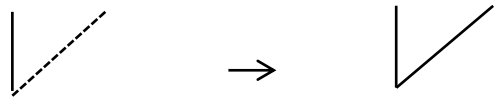
Traditionally, Arabic has been known as *Lughat Al- dˤaad* (the language of dˤaad), which stands for the letter *dˤaad*, the voiced pharyngealized dento-alveolar stop [dˤ]. The significance of this term is because Arabs believe that pharyngealization is a unique characteristic that marks their language and is rarely found across other languages (Alosh, 1987). However, this unique voiced pharyngealized dento-alveolar stop [dˤ] is absent in the Najdi inventory. As a result, words that contain this sound in Standard Arabic are produced with the voiced dental pharyngealized fricative [ðˤ] instead. For example, the word 'lost' is [dˤaʕ] in Standard Arabic but [ðˤaʕ] in Najdi (Ingham, 1994).

The Study

Two allophonic variations of lateral /l/ are examined in Najdi; velarized and pharyngealized /ɫ/ and /lˤ/, respectively. Environments that might trigger their existence are examined in this paper. Uvular consonants are expected to cause uvularization spread that affects the lateral /l/ and add the feature [+VELAR] to it. Similarly, pharyngealized consonants are expected to spread pharyngealization to adjacent segments including /l/ and add the feature [+PHARYNGEAL] to it. This can be better shown using *Autosegmental Theory*. In the following example, the lateral /l/ acquires the feature [+PHARYNGEAL] through feature spreading of the preceding pharyngealized consonant [sˤ].

(1) C V C C V C

/sˤ a l/ /sˤ a lˤ/ ‘pray’

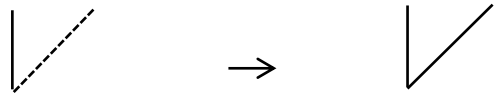


[+PHARYNGEAL] [+PHARYNGEAL]

Similarly, in (2), the feature [+VELAR] spreads from the uvular [ʁ] to affect the lateral /l/ causing it to be velarized: [ɫ]

(2) C V C V C V C V

/ʁ a l a/ /ʁ a ɫ a/ ‘Appreciation’



[+Back] [+Back]

[+VELAR] [+VELAR]

Data and Discussion

Data are divided into two major groups: uvulars and pharyngealized consonants. Minimal pairs and pronunciation variants are provided to better show the effect of these consonants on the lateral /l/ in comparison to other consonants of the dialect. The organization of the data starts with uvulars first, followed by pharyngealized consonants of Najdi.

Uvulars

There are three uvular consonants in Najdi: /ʁ/, /χ/, and /q/.

(3) The voiced uvular fricative /ʁ/:

(a) Pronunciation variants:

ʁaɫa	‘appreciation’
ɣala	‘appreciation’

(b) Examples:

ɣa:li	‘expensive’
ɣallajah	‘water boiler’
aɣlab	‘most’
malɣi	‘cancelled’
ʁaɫa	‘increased the prices’
ɣalla	‘increased the prices’
ʁaɫatˤ	‘wrong’
ɣalatˤ	‘wrong’

(c) But*:*

*ɣa:ɫ

*ɣaɫajah

*ɣɫab

*ʁlaðˤ

*ʁɑlatˤ

(d) No *spread:*

ʁulam	‘boy’
ʁu:l	‘monster’

Data in 3(a) show that the voiced uvular fricative /ʁ/ and the voiced velar fricative /ɣ/ are in free variation in Najdi provided that both phonemes occur in the same environment: word initially and before a low central vowel /a/. Najdi is not the only dialect where the two categories: velars and uvulars, interfere. Herzallah (1990) reports that in certain dialects of Arabic, namely Cairene Arabic and Northern Palestinian Arabic, the two uvulars /χ/ and /ʁ/ are recognized as velars [x] and [ɣ] rather than uvulars.

Examples in 3(b) show that plain lateral /l/ is only allowed to occur before or after the velar fricative /ɣ/, but never before or after the uvular /ʁ/. A violation to these two environments leads to unpronounceable forms as in 3(c).

Data also show a *feature-spread effect* introduced by Norlin (1985) where the coronal uvular fricative /ʁ/ spreads the feature of uvularization to the adjacent vowel and lateral adding the feature [+VELAR] to the lateral /l/ changing it from being a plain /l/ to a velarized [ɫ]. This is what Ferguson (1956) describes as the unexpected environment where uvulars trigger the environment of a velarized [ɫ].

Note that the last two examples of 3(b): [ʁɑɫatˤ] and [ɣalɑtˤ], show that the uvular fricative /ʁ/ is what causes /l/ to be velarized by spreading uvularization rightward, not the pharyngealized alveolar stop /tˤ/ considering that plain [l] occurs before [tˤ] in [ɣalɑtˤ].

Finally, data in 3(d) prove that the uvularization spread is blocked by the two vowels [i] and [u] as plain /l/ occurs following /ʁ/.

(4) The voiceless uvular fricative /χ/:

(a) Pronunciation variants:

χaɫi	‘uncle’
xali	‘uncle’

(b) Examples:

xal	‘vinegar’
xa:li	‘empty’
χaɫɫasˤ	‘finished’
xallasˤ	‘finished’
χaɫaf	‘came after’
χaɫɫasˤ	‘finished’

(c) But:

*xaɫ

*xa:ɫi

*χalaf

(d) No spread:

χil	‘lover’
χulasˤah	‘summary’
χilal	‘through’
χuluq	‘manners’

Similar to the uvular /ʁ/, data in 4(a) show that the voiceless uvular fricative /χ/ and the voiceless velar fricative [x] are in free variation in Najdi as their environments are overlapping; both occur word initially and before a central vowel [a]. Note that for the word ‘uncle’ in 4(a), [χaɫi] and [xali], both the velar [x] and uvular [χ] are used to indicate the same meaning, however, the use of one over the other requires spreading of the uvularization feature to affect the lateral /l/ resulting in [ɫ].

Examples in 4(b) show that plain lateral /l/ is only allowed to occur before or after the velar fricative /x/, but never before or after the uvular /χ/. A violation of these two environments leads to unpronounceable forms as in 4(c). Examples in 4(d) again show no uvularization spread to /l/ when the two vowels [i] and [u] are involved.

Generally, the velarized variety of the lateral [l] is associated with the uvular consonants /ʁ/ and /χ/ while the plain variety is associated with the velars /ɣ/ and /x/. Besides the difference in the place of articulation of these two consonants, uvulars have the feature [+RTR] as the primary articulator while velars do not (Davis, 1993,1995). This could explain why only uvulars trigger such emphasis spread.

(5) The voiceless uvular fricative /q/:

(a) Pronunciation variants:

qa:lib	‘module’
ga:ɫib	‘module’

(b) Examples:

qalʕah	‘castle’
gɫu:b	‘hearts’
gaɫam	‘pen’
ga:ɫ	‘he said’
qalil	‘few’

(c) But:

*qa:ɻ

*qɦu:b

(d) No spread:

gi:l	'it has been said'
gu:l	'say- imperative'

Similar to the other uvulars, examples in 5(a) show that uvular /q/ and velar [g] are in free variation due to environment overlapping. Interestingly, unlike the uvular fricatives /ʁ/ and /χ/, the uvular stop /q/ does not spread uvularization to laterals at all as shown in 5(b). Instead, it is the velar [g] that triggers such spread. The only feature that could account for the difference here is the manner of articulation of the uvular /q/ where it is a stop while /χ/ and /ʁ/ are both fricatives. Voicing is eliminated since both /q/ and /χ/ are voiceless, but only /χ/ spreads uvularization to the lateral /l/.

Furthermore, Ghazeli (1977) tackles an interesting issue regarding the production of the uvular stop /q/. He explains that the uvular /q/ is articulated by pressing the *superior-posterior* back of the tongue against the uvula, and he argues that some Arabic dialects differ in the way this uvular stop is produced. Some dialects, especially the Bedouin dialects, produce the uvular /q/ as a voiced velar /g/ while other change it to either a voiceless glottal stop, or to a voiced uvular trill [R]. Najdi is one of the dialects that produce the voiceless uvular /q/ as a voiced velar [g] in almost all words where the uvular /q/ appears in Standard Arabic. Thus, all words in 5(b) have two ways of reading them without causing a change in the meaning: with a uvular /q/ (Standard Arabic), or with a velar /g/ (Najdi). It is worth mentioning though that there are very few Najdi words that are always produced with the uvular /q/, at all times and all of these words are borrowed from the Standard variety of Arabic.

Moreover, it has been reported, in different Arabic studies, that uvulars differ in the way they affect adjacent segments. In his study, Sayyed (1981; as cited in Zawaydeh, 1997, p. 195) observes the effect of /q/ on adjacent segments in Moroccan Arabic and concludes that unlike other uvulars and pharyngealized consonants, the effect of /q/ is only noticed on the adjacent vowel, and that it does not spread uvularization to the whole word. This is similar to what has been found in Najdi.

Pharyngealized Consonants

Only three pharyngealized consonants exist in Najdi: [sˤ],[ðˤ] and [tˤ].

(6) The voiceless pharyngealized alveolar fricative /sˤ/

(a) Minimal Pairs:

sˤɑlˤlˤɑ	'prayed'
salla	'made someone happy'
sˤɑlˤb	'solid
salb	'stealing'

(b) Examples:

sˤɑlˤi:b	'cross'

sˤɑlˤb	‘solid’
sˤɑlˤɑ:lˤɑh	‘name of a city’
lˤɑsˤg	‘tape’
sˤɑlˤah	‘living room’
sˤɑlˤa:ħ	‘righteousness’
sˤɑlˤɑ:h	‘prayer’
sˤɑlˤun	‘barber shop’
sˤɑlˤiħ	‘good person’

(c) No spread:

!sˤɑli:b	‘cross’
!sˤɑlb	‘solid’
!sˤɑlɑ:lah	‘name of a city’
!lɑsˤg	‘tape’
osˤu:l	‘roots’
asˤi:l	‘original’
sˤamil	‘certain’
sˤajil	‘angry’

The existence of a minimal pair as in 6(a) clearly shows that the pharyngealized alveolar fricative [sˤ] is a distinct phoneme in Najdi. The effect of pharyngealization spreads from the pharyngealized consonant to affect other adjacent consonants by adding the feature [+PHARYNGEAL] to them. Examples in 6(b) show that pharyngealized [sˤ] spreads its pharyngealization effect both rightward and leftward resulting in [lˤ], which is described as [+PHARYNGEAL, LATERAL, APPROXIMANT, SONORANT].

Furthermore, some Najdi speakers would produce plain laterals after the pharyngealized fricative [sˤ]. Although this is acceptable in Najdi, it is not preferred and this is why some examples in 6(c) are marked with an exclamation mark. The last two examples in 6(c) show that the two vowels [i] and [u] block the pharyngealization spread, thus we have plain /l/ instead of [lˤ].

None of the previous studies, at least to my knowledge, tackle the issue of optional pharyngealization spread after pharyngealized consonants. Other pharyngealized consonants need to be observed to see if this optionality in spreading is generalized over all pharyngealized segments in Najdi or unique to the voiceless pharyngealized alveolar fricative [sˤ]. This might also justify why a plain /l/ is allowed to precede the pharyngealized [sˤ] in the word [xɑllɑsˤ] ‘finished’ in the data of the voiceless uvular fricative /χ/.

(7) The voiced pharyngealized dental fricative /ðˤ/

(a) Minimal Pairs:

ðˤɑlˤ	‘got lost’
ðal	‘humiliated’
ðˤɑʕ	‘got lost’

ðaʕ	‘became popular’
ðˤɑm	‘hugged’
ðam	‘vilified’

(b) Examples:

ðˤa:lˤim	‘unfair’
ðˤɑlˤ	‘lost’
ðˤlˤuʕ	‘ribs’
ðˤɑlˤɑ:m	‘darkness’

(c) No spread

!ðˤa:lim	‘unfair’
!ðˤɑl	‘lost’
!ðˤluʕ	‘ribs’
!ðˤɑlɑ:m	‘darkness’
nuðˤu:l	‘envious’
ðˤilʕ	‘a rib’

The minimal pairs in 7(a) show that the voiced pharyngealized dental fricative [ðˤ] is a distinct phoneme in Najdi. The effect of pharyngealization spreads from the pharyngealized consonant to affect other adjacent consonants including /l/ by adding the feature [+PHARYNGEAL] to it. Examples in 7(b) clearly show that pharyngealized /ðˤ/ spreads pharyngealization effect to /l/ resulting in [lˤ].

Similar to [sˤ], production of plain /l/ after pharyngealized /ðˤ/ is allowed, but not preferred as shown in 7(c). The last two examples in 7(c) prove that pharyngealization spread is blocked by the two high vowels [i] and [u].

(8) The voiceless pharyngealized alveolar stop [tˤ]

(a) Minimal Pairs:

tˤalˤ	‘he took a glance’
tal	‘hill’
tˤil	‘take a glance’
til	‘pull up someone very quick’

(b) Examples:

tˤɑlˤab	‘request’
tˤɑlˤlˤɑh	‘glance’
lˤɑtˤif	‘nice’
tˤɑlˤib	‘student’
tˤɑlˤiq	‘divorce term’
tˤɑlˤaq	‘aimed’
tˤɑlˤiʕ	‘went outside’

(c) No spread

!tˤɑlab	‘request’
!tˤɑllɑh	‘glance’
!lɑtˤif	‘nice’
tˤu:l	‘length’
banatˤil	‘trousers’

Similar to the other two pharyngealized cosonants, pharyngealization is spreading both rightward and leftward to /l/ resulting in [lˤ]. Examples in 8(c) show that just like the other pharyngealized consonants, plain /l/ after pharyngealized [tˤ] is allowed, but not preferred. The last two examples in 8(c) show that no spreading takes place when the high front vowel [i] and the high back vowel [u] follow the pharyngealized consonant and precede the lateral /l/; i.e, these two vowels block such spread.

General Discussion

Ferguson (1956) discusses three possible environments where the emphatic /l/ appears in Arabic: The first environment is when Arabic emphatic consonants [sˤ], [dˤ], [tˤ], and [ðˤ] exist in a word. The second environment is what he describes as an unexpected environment such as with the uvulars [χ, ʁ, q], or in borrowed words. The last environment is associated with the different forms of the word God [ʔalˤlˤah]. Only the first two environments are compared to the results of this study. Due to the absence of the voiced dento-alveolar stop [dˤ] in Najdi, this consonant is eliminated.

Findings of this study show that similar to what Ferguson (1956) suggested, pharyngealized consonants and uvulars affect the lateral /l/ in Najdi. Results show that only uvular fricatives [χ] and [ʁ] are found to spread uvularization to /l/ resulting in [ɫ], but never the uvular stop /q/. Instead, the velar [g] does the spreading. A remarkable finding in this study is that uvulars and velars are in free variation in Najdi as their environments overlap with one another. Furthermore, the voiceless uvular stop /q/ is replaced by [g] in almost all instances where /q/ should appear in the language, with few exceptions.

Pharyngealized consonants [ðˤ], [sˤ], and [tˤ] are found to spread pharyngealization to laterals resulting in [lˤ] with a feature of [+PHARYNGEAL]. This is compatible with what Ferguson indicated in his study. However, the spreading is noticed to be optional in Najdi.

Conclusion

In summary, this study investigated the possible phonetic variations of the lateral /l/ in Najdi. Two varieties of /l/ were observed: the pharyngealized [lˤ] and velarized [ɫ]. Results show that uvulars and velars are in free variation in Najdi and that only fricative uvulars spread emphasis to laterals resulting in [ɫ]. The remaining uvular stop /q/ does not. Instead, its velar variant [g] causes such spread. Results also show that all Najdi pharyngealized consonants spread pharyngealization both rightward and leftward to lateral /l/ resulting in [lˤ]. Interestingly, this spread is optional in the dialect.

Bio

Reham Alhammad is an Assistant Professor of Linguistics at Almajmaah University. She received her PhD in Linguistics from the University of Wisconsin-Milwaukee, USA. Her research interests include Linguistics, Phonology, and Phonetics. Besides Linguistics, she is equally interested in Translation Studies.

References

Al-Ani, S. H. (2014). *Arabic phonology: An acoustical and physiological investigation*. Walter de Gruyter. https://doi.org/10.1515/9783110878769

Almasri, M., & Allard, J. (2004). Acoustic correlates of emphasis in Jordanian Arabic: Preliminary results. In A. Agwuele, S. Park, & W. Warren (Eds.), *Proceedings of the 2003 Texas linguistics society conference: Coarticulation in speech production and perception* (pp. 96 –106). Cascadilla Proceedings Project.

Alosh, M. (1987). *The perception and acquisition of pharyngealized fricatives by American learners of Arabic and implications for teaching Arabic phonology.* (Publication No. 974804304) [doctoral dissertation, Ohio State University]. Dissertation Abstracts International.

Chomsky, N., & Morris, H. (1968). *The sound patterns of English*. Harper & Row.

Davis, S. (1993). Arabic pharyngealization and phonological. In *Perspectives on Arabic Linguistics V: Papers from the Fifth Annual Symposium on Arabic Linguistics*, *5*, 149–162. https://doi.org/10.1075/cilt.101.10dav

Davis, S. (1995). Emphasis spread in Arabic and grounded phonology. *Linguistic Inquiry, 26*(3), 465–498. https://www.jstor.org/stable/4178907

Elshafei, M. (1991). Toward an Arabic text-to-speech system, in the special issue on Arabization. *The Arabian Journal for Science and Engineering*, *16*(4), 565–583. http://www.ccse.kfupm.edu.sa/~elshafei/MES_AJST91.pdf

Ferguson, C. (1956). The emphatic l in Arabic. *Language*, *32*(3), 446–452. https://doi.org/10.2307/410565

Ghazeli, S. (1977). *Back consonants and backing coarticulation in Arabic* [doctoral dissertation, University of Texas]. UMI Dissertation Services.

Herzallah, R. (1990). *Aspects of Palestinian Arabic phonology: A non-linear approach.* (Publication No. 64025114) [doctoral dissertation, Cornell University].

Hoberman, R. (1995). Current issues in Semitic Phonology. In J. A. Goldsmith (Ed.), *The Handbook of Phonological Theory* (2nd ed., pp. 839–847). Cambridge, MA.: Blackwell. https://www.jstor.org/stable/4420096

Ingham, B. (1994). *Najdi Arabic: Central Arabian.* John Benjamins. https://doi.org/10.1075/loall.1

Lehn, W. (1963). Emphasis in Cairo Arabic. *Language*, *39*(1), 29–39. https://doi.org/10.2307/410760

McCarthy, J. J. (1986). OCP effects: Gemination and antigemination. *Linguistics Inquiry*, *17*(2), 207–263. https://scholarworks.umass.edu/linguist_faculty_pubs/51

McCarthy, J. J. (1994). The phonetics and phonology of Semitic pharyngeals. *Papers in Laboratory Phonology: Phonological Structure and Phonetic Form*, *86*, 191–233. https://scholarworks.umass.edu/linguist_faculty_pubs/86

Norlin, K. (1985). Pharyngealization in Cairo Arabic. *Working Papers in Linguistics*, *28*, 139–150. https://journals.lub.lu.se/LWPL/article/view/16937/15316

Shar, S., & Ingram, J. (2010). Pharyngealization in Assiri Arabic: An acoustic analysis. In A. Butcher, D. Grayden, J. Fletcher, J. Hajek, & M. Tabian (Eds.), *Proceedings of the 13th Australasian international conference on speech science and technology* (pp. 1–8). Causal Productions.

Watson, J. (1999). Remarks and replies: The directionality of emphasis spread in Arabic. *Linguistic Inquiry 30*(2), 289–300. https://doi.org/10.1162/002438999554066

Younes, M. A. (1983). *Problems in the segmental phonology of Palestinian Arabic.* [doctoral dissertation, University of Texas].

Zawaydeh, B. (1997). An acoustic analysis of uvularization spread in Ammani-Jordanian Arabic. *Studies in the Linguistic Sciences, 27*(1),185–200. http://hdl.handle.net/2142/11582

جامعة الملك سعود
King Saud University

Journal of Research in Language & Translation

Issue No. 2 Vol. 1 (2021)

The Relationship Between Motivation Types and Metacognitive Listening Strategies: The Case of Adult EFL Students in Saudi Arabia

Raed Alzahrani

Institute of Public Administration, English Language Center, Dammam 32210, Saudi Arabia
Alzahranir@ipa.edu.sa

Received: 18/4/2021; Revised: 6/7/2021; Accepted: 5/8/2021

الملخص

عدة أبحاث أكدت أن متعلمي اللغة حول العالم يواجهون صعوبة في التعامل مع مهارة الاستماع. ليو و هوانج (٢٠١١) أكدا أن السبب في صعوبة تعلم الطلاب الصينيين للغة الإنجليزية هو ضعف حافزيتهم تجاه تعلم هذه اللغة. عدد قليل من الدراسات تطرق للبحث عن العلاقة بين حافزية متعلمي اللغة الإنجليزية وبين استخدامهم لاستراتيجيات الاستماع الفوق معرفية. مع ذلك لا يوجد حتى الان دراسة تطرقت لبحث هذه العلاقة بين متعلمي اللغة الإنجليزية كلغة اجنبية في المملكة العربية السعودية. للمساهمة في إثراء هذا الجانب، قام الباحث بدراسة نوع الحافزية الذي يمتلكه ٨٠ طالب سعودي تجاه تعلم اللغة واستراتيجيات الاستماع فوق المعرفية المستخدمة من قبلهم، وما إذا كان هنالك علاقة بين هذين المتغيرين. لجمع البيانات قام المشاركين في البحث بتعبئة استبانتين بحثيتين صُمّمت لمعرفة نوع الحافزية الذي يمتلكونه لتعلم اللغة واستراتيجيات الاستماع فوق المعرفية المستخدمة غالبا عند الاستماع. نتائج البحث أظهرت أن الطلاب يتعلمون اللغة لحوافز داخلية، ظاهرة حديثة بين متعلمي اللغة في السعودية، وأنهم عادة يستخدمون استراتيجية حل المشكلة عند الاستماع. بالإضافة إلى وجود دلالة إحصائية قوية وإيجابية بين جميع أنواع الحافزية واستراتيجيات الاستماع الفوق معرفية. نتائج هذا البحث تقدم مفهوم مبدئي للطريقة التي يتبعها متعلمي اللغة الإنجليزية في السعودية للاستماع إلى اللغة، وكما تقدم بعض المقترحات التعليمية التي يحث الباحث فيها معلمي اللغة الإنجليزية على تدريس استراتيجيات الاستماع فوق المعرفية للطلاب إذا ما أرادوا زيادة حافزية طلابهم لتعلم اللغة.

جامعة الملك سعود
King Saud University

Journal of Research in Language & Translation

Issue No. 2 Vol. 1 (2021)

Abstract

Research indicates that students across the globe consider listening to be the most challenging language skill to deal with. Liu and Huang (2011) investigating Chinese students learning English found that the reason behind their struggle is that they lack motivation. Few studies have investigated the relationship between students' motivation and their use of metacognitive listening strategies in the EFL classroom. However, no previous research has examined this relationship among Saudi EFL students. Therefore, the present study attempted to investigate the motivation types of male Saudi students (N = 80), their frequently used metacognitive listening strategies, and the relationship between these two areas. The participants completed two surveys that were designed to elicit their motivation toward learning English and the metacognitive listening strategies they use while listening. Results of this study indicated that the participants were integratively motivated, a new finding among Saudi EFL students, and that they mostly used problem-solving strategies while listening. Also, all motivation types correlated positively and significantly with all metacognitive listening strategies, suggesting a strong relationship between motivation and metacognitive listening strategies among Saudi EFL learners. The findings present a preliminary understanding of how Saudi students tackle listening in the classroom and suggest some instructional implications for Saudi teachers to teach metacognitive listening strategies to bolster students' motivation.

Keywords: motivation, metacognitive strategies, FL listening, Saudi EFL learners

---

Introduction

Research indicates that students across the globe consider listening to be the most challenging language skill to deal with. Vandergrift (2004) stated that listening is considered challenging because it involves some cognitive processes. He also stressed the importance of raising students' awareness of these processes by teaching them effective strategies in the classroom so they can be more proficient listeners. According to Hamouda (2013), Saudi students were noted to have problems with listening comprehension among all four language skills.

Liu and Huang (2011) investigating Chinese students learning English found that the reason behind their struggle is that they lack motivation. Dörnyei and Skehan (2003) argued that learning strategies are needed to maintain students' high motivation. Motivation plays an integral role in language learning, including Saudi students' motivation to learn the language. Their behavior might be driven by multiple social factors such as culture, religion, and job promotion (Alfallaj, 1998; AlMaiman, 2005). Gardener (1985) stated that if students' attitudes toward learning a language are unfavorable, then studying a foreign language will be of no use.

Based on this background, the current study attempted to explore the type of motivation college-level students (N = 80) at the Institute of Public Administration (IPA) have, their most frequently used metacognitive listening strategy, and the relationship between these two areas. In other words, the researcher aimed to find out what integrative, instrumental, intrinsic, and extrinsic factors drive students' motivation in learning English, and whether there is a significant relationship between these factors and the 21 metacognitive listening strategies identified in Vandergrift et al. (2006).

Review of the Literature

Motivation

Gardener (1985) defined motivation by specifying four aspects of motivation: a goal, effortful behavior to reach the goal, a desire to attain the goal, and positive attitudes towards the goal. He also argued that these aspects of motivation are fundamental to assess second language learners' motivation in the classroom.

Many instructors believe that motivation is a crucial factor in successful language learning. Dörnyei and Csizér (1998) stated that students who lack motivation end up failing to achieve their desired goals. Primarily, in the domain of second language acquisition, the notion of motivation came from social psychology. Dörnyei (1998) stated that most research on motivation was inspired by the two Canadian psychologists, Robert Gardner and Wallace Lambert, and research was conducted through a social psychological frame.

However, Dörnyei (1998) examined motivation from a dynamic perspective and defined it as a "process whereby a certain amount of instigation force arises, initiates action, and persists as long as no other force comes into play to weaken it" (p. 118). Dörnyei and Schmidt (2001) claimed that motivation in the socio-educational model consisted of three components. First, a

motivated student might demonstrate some effort by doing homework or extracurricular activities as an indicator of their determination to learn the language. Second, this student has a goal, and he/she will exert great effort to achieve it. Third, this motivated student will enjoy doing this task and consider it a challenge. However, the researchers asserted that each component does not fully interpret motivation. Dörnyei and Schmidt (2001) argued that some students would still make an effort in the class, even though they find the class uninteresting and they have no intense desire to be successful. Therefore, they stated that "the truly motivated individual displays effort, desire, and affect" (p. 6).

Integrative and Instrumental Motivation

Gardner's (1985) main approach suggests two reasons why people study a second language, which he referred to as orientations. These orientations are (1) Integrative, which is defined as a favorable attitude toward the target language community; possibly a wish to integrate and adapt to a new culture through the use of the target language; and (2) Instrumental, which is a more practical reason for learning the target language, such as a job promotion or a language requirement.

Gardner and Lambert (1972) proposed that an individual with an integrative orientation would highlight a greater motivational effect in studying a language, and thus would achieve L2 success. On the other hand, in recent years, extensive research into instrumental motivation has partially refuted the dominance of integrative motivation in L2 teaching and learning. Dörnyei and Schmidt (2001) claimed that "there is no reason to argue that motivation is driven only by integrative factors" (p. 7).

Intrinsic and Extrinsic Motivation

Although the instrumental and integrative types of motivation that were theorized by Gardener and Lambert have previously dominated the field, more recent types of motivation related to second and foreign language learning have begun to appear as people's understanding of motivation is expanding. Around the same time as Gardner developed his Socio-Educational Model, Deci and Ryan (1985) created the intrinsic/extrinsic motivation theory. They claimed that learners who are interested in learning tasks for their own sake (intrinsic) rather than for external rewards (extrinsic) are likely to become more effective learners. Deci (1995) went on to define intrinsic motivation as the motivation that creates a sense of enjoyment within the learner, and the learner seeks a reward internally. Extrinsic motivation, on the other hand, is motivation from external sources and beyond oneself.

Scholars have emphasized the prevalence of intrinsic over extrinsic motivation, on the basis that intrinsic motivation is more sustainable and is voluntary. Extrinsic motivation can be easily removed by way of eliminating the reward, or if students are not obligated to learn anymore. Deci and Ryan (1985) claimed that if learners received too many rewards that might overcome their intrinsic motivation and would thus affect their motivation. Dörnyei (1998) also had a similar idea that if learners had to meet an extrinsic requirement such as mandatory reading in school, they would lose their intrinsic motivation, such as reading for enjoyment.

Motivational Studies in the Saudi Context

In an EFL context, Dörnyei (1994) believes that extrinsic and instrumental motivation have more effect on learners due to the limitations of interacting with native speakers of English or the target language's society. This view was evident in some studies in the Saudi context (e.g., Al-Otaibi, 2004; Moskovsky & Alrabai, 2009). A study conducted at the English Language Centre of the IPA in Riyadh by Al-Otaibi (2004) investigated the language learning strategies used by Saudi students and their relationship to other factors such as language proficiency level, gender, and motivation. The participants of this study were college-level students (*N* = 237). The researcher collected the data in three forms, one of which was a motivation questionnaire. The questionnaire included 15 items, the first five items were on integrative motivation, the following five items on instrumental motivation, and the final five on the effort to learn and desire to use the language. The results showed that the subjects reported high levels of instrumental motivation and a lower level in the effort and desire to use the language.

In another study conducted by Moskovsky and Alrabai (2009), the researchers attempted to measure if intrinsic motivation will overcome extrinsic or instrumental motivation. The researchers designed a 27-item survey for a random selection of Saudi learners studying in public schools and universities (*N* = 55). The survey had items measuring students' intrinsic motivation such as "*I enjoy using English outside of class whenever I have a chance"*, or *"I would study English even if it were not required by my school or university.*" Some items targeted instrumental motivation such as "*I am learning English because knowledge of English will enable me to get a highly paid job.*" Other items measured the other two types of motivation, extrinsic and integrative. Results indicated that instrumental motivation was higher than all other types of motivation.

That said, a more up-to-date investigation and understanding of Saudi students' motivation toward learning English is needed, considering the huge economical and educational shift that took place during the last decade. It would be rather interesting to see if Saudi students still learn English mainly for instrumental motives, or if their views have changed in the last ten years.

Metacognitive Listening Strategies

Metacognition in cognitive psychology is "cognition about cognition" (Flavell, 2000, p. 16). Magaldi (2010) claimed that metacognition only occurs when it is supported by the use of metacognitive strategies in the language classroom. Wenden (1998) defined metacognitive strategies as "general skills through which learners manage, direct, regulate, guide their learning, i.e., planning, monitoring and evaluating" (p. 519). Vandergrift et al. (2006) demonstrated the strength and validation of a five-factor model for listening strategies (see Table 1), which they called the Metacognitive Awareness Listening Questionnaire (MALQ), by conducting a factor analysis with two large samples of language learners. They found that there is a significant relationship between MALQ scores and learners' listening behavior. The five factors in the MALQ (i.e., problem-solving, planning and evaluation, mental translation, personal knowledge, directed attention) are used in this study to elicit students' use of metacognitive strategies while

listening to an oral text. Many empirical studies have shown that a skilled listener uses more metacognitive strategies while listening (Goh & Yusnita, 2006; Looi-Chin et al., 2017; Vandergrift, 2003; Vandergrift & Tafaghodtari, 2010).

Table 1

Metacognitive Listening Strategies

Factor	Concept	Examples
Problem-solving	The strategies used by learners to guess what they do not understand and to monitor these inferences.	Using previous knowledge of certain words to guess the meaning of unfamiliar words while listening.
Planning and evaluation	The strategies learners used to prepare themselves before listening, and then after to evaluate their effort.	Having a goal in mind while listening and thinking about similar texts that will facilitate the understanding of the new oral text
Mental translation	The strategies that are used if students felt the necessity to rely on their L1 to understand an English oral text.	A learner translating the text in their L1 while listening.
Personal knowledge	Represents listeners' perceptions concerning the difficulty presented by L2 listening and their self-efficacy in L2 listening.	Items assessing the difficulty of the oral text, the confidence of the learner, and the anxiety associated with listening.
Directed attention	The strategies learners use to stay focused on the task.	Retrieving concentration when being distracted while listening and not giving up when encountering a challenging text.

Note. Adapted from Vandergrift et al. (2006)

Vandergrift (2003) investigated the metacognitive strategies used by 36 junior high school students while listening to a French oral text. Students came from different language backgrounds and French was their L2. Vandergrift found that the more skilled listeners used more metacognitive strategies such as monitoring, less translation, more questioning elaboration, and clearer inferencing, whereas, the less skilled listeners used less comprehension monitoring,

no effective planning, more translation, and unclear inferencing. The researcher stressed the importance of using metacognitive instruction when teaching listening comprehension so students can be more aware of the listening process and thus be more proficient. He also recommended the investigation of metacognitive strategies in other languages and with older learners to examine if similar results would be deduced.

A more recent study was conducted by Looi-Chin et al. (2017) where they attempted to identify the level of metacognitive strategies used by college students (N = 100) in Malaysia while listening, and the effect of these strategies on their listening test scores. The authors used the MALQ, which was designed by Vandergrift et al. (2006), to elicit students' use of metacognitive strategies while listening in English. The results show that students who used more metacognitive strategies achieved higher scores in the listening test. Based on the findings of their research, the authors advised EFL teachers to enhance their students' use of metacognitive strategies such as planning and evaluation, personal knowledge, directed attention, and problem-solving.

A couple of studies have used the MALQ to investigate the metacognitive listening strategies used by Saudi EFL students (Alhaisoni, 2017; Altuwairesh, 2016). Altuwairesh (2016) investigated the metacognitive listening strategies mostly used by 82 female students at King Saud University when listening to an English text. The findings elicited from the MALQ showed that students reported more use of problem-solving and directed attention strategies compared to the other three strategies. Alhaisoni (2017) reached a similar finding when he investigated the use of the five metacognitive listening strategies reported in the MALQ among 104 male and female Saudi EFL medical students. The author stated that mental translation and personal knowledge strategies were less frequently used compared to problem-solving and directed attention strategies. The participants in both studies had 6-14 years of experience learning English. That said, even though these two studies shed light on the metacognitive listening strategies used by Saudi EFL students, no study has investigated the relationship between motivation and metacognitive listening strategies in the Saudi context.

Motivation and Metacognitive Listening Strategies

Many scholars in the field of second language acquisition have asserted the importance of linking motivation to learning strategies as they potentially have positive effects on one another. Dörnyei (2003) suggested that investigating the relationship between motivational orientations and learning strategies connects L2 motivation research with L2 learning. Ziahosseini and Salehi (2007) found the higher motivation a student has, the more learning strategies he/she uses, which illustrates a high correlation between these two factors.

Motivation was also related to the use of cognitive and metacognitive learning strategies. Schmidt and Watanabe (2001) believe that if learners are studying a second language for instrumental, intrinsic, or extrinsic goals, then using cognitive and metacognitive strategies facilitates their path to achieve those goals. Goh and Yusnita (2006) also stated that using metacognitive instruction when teaching students listening skills raises students' confidence and motivation.

Few studies investigated the relationship between motivation and the use of metacognitive listening strategies in an EFL context (e.g., Harputlu & Ceylan, 2014; Kassaian & Ghadiri, 2011; Vandergrift, 2005). Vandergrift (2005) examined the relationship between motivation types (extrinsic, intrinsic, amotivation), listening strategies, and proficiency levels among 57 high school students learning French. Results showed that amotivation correlated negatively with most of the listening strategies, whereas extrinsic motivation showed a more positive correlation with some strategies. However, intrinsic motivation correlated more significantly with listening strategies than extrinsic motivation. The author concluded that the more intrinsically students were motivated, the more metacognitive listening strategies they used in the classroom. He also suggested that future research should focus on applying this study to a larger group of participants in a different cultural context.

Kassaian and Ghadiri (2011) also investigated the type of motivation of upper intermediate Iranian students (N = 30) and the relationship to metacognitive awareness strategies in listening comprehension adopted from Vandergrift et al. (2006). Results showed that students used less mental translation strategies when listening. This was an expected result considering the students' proficiency level, as claimed by the authors. In addition, both intrinsic and extrinsic motivation showed a positive, although not significant, correlation with all strategies, except between intrinsic motivation and mental translation strategies. The authors stated that significant correlations were not reached due to the low sample size.

Similarly, Harputlu and Ceylan (2014) tried to discover if there was any relationship between motivation, listening strategies, and listening proficiency. Two questionnaires were administered to college students (N = 33) in Turkey. The students were exposed to English for a period of 13 years; however, their proficiency level was not mentioned in the study. The results highlighted that amotivation corresponded negatively with strategies like (problem-solving, directed attention, planning) and positively with (personal knowledge, mental translation). However, these correlations were not statistically significant. Intrinsic and extrinsic motivation correlated positively with three strategies and negatively with the remaining two. Nonetheless, these correlations also did not represent any statistical significance. The authors stated that this study should be administered on a larger group to, potentially, deduce different findings.

Although the relationship between motivation and metacognitive listening strategies is still underrepresented in L2 literature, the Saudi context is still unexplored in this regard. The abovementioned studies suggest investigating the relationship between motivation and metacognitive listening strategies in a different EFL cultural context with a larger group of learners to determine if different results can be elicited.

The Present Study

The present study investigated the type of motivation advanced Saudi university-level/post-secondary EFL students (N = 80) have toward learning English, and the metacognitive listening strategies they use in the language classroom. Also, this study aimed at discovering if there is a relationship between these two areas. No study has investigated the relationship

between motivation and metacognitive listening strategies in the Saudi context. Therefore, the results of this study will contribute to filling this gap in the Saudi EFL context. It is also hoped that the results of this research would be a steppingstone for Saudi researchers to further examine the nature of the relationship between motivation and metacognitive listening strategies, and eventually contribute to offering some useful classroom implications for Saudi teachers. The present study sought to answer the following research questions:

1- Are the advanced students at the language center intrinsically, extrinsically, integratively, or instrumentally motivated?
2- What metacognitive listening strategy is most frequently used by advanced students in the listening classroom?
3- Is there a relationship between motivation types and metacognitive listening strategies?

Method

Participants

Eighty college-level male students studying at IPA English center participated in this study. IPA is a government facility that offers diploma degrees in various administrative fields such as Banking, Accounting, Administrative Studies, Business, and Law. Students who graduate from high school and enroll in IPA have to study academic English for one year before getting admitted to a diploma program. The English program consists of four levels: level 1, level 2, level 3, and level 4. Participants' ages ranged between 18-23 years and their proficiency level is advanced (level 4).

Instruments

Motivation Questionnaire

This 23-item questionnaire is adapted from a previous instrument, which was a 97-item questionnaire developed and used by Schmidt et al. (1996) in a study of the motivation of adult learners (N = 1,464) in Egypt. In adapting the questionnaire for the present study, it was shortened and modified to serve the purpose of this study. The adapted questionnaire is composed of items on the four types of motivation: intrinsic (six items), extrinsic (five items), integrative (six items), and instrumental (six items). Participants had to choose from a six-point Likert scale (one representing '*Strongly disagree*' and six representing '*Strongly agree*'). Since this questionnaire was adapted, shortened, and translated, the internal consistency of the four subscales in the questionnaire was tested and resulted in an acceptable Cronbach alpha that ranged between .71 and .83 for all subscales. The questionnaire items were validated by the original authors.

Metacognitive Awareness Listening Questionnaire (MALQ)

This questionnaire consisted of 21 items and was originally developed by Vandergrift et al. (2006). The items in the MALQ were related to five metacognitive factors (see Table 1), planning and evaluation (five items), directed attention (four items), personal knowledge (three items), mental translation (three items), and problem-solving (six items). Participants had to

choose from a six-point Likert scale (one representing '*Strongly disagree*' and six representing '*Strongly agree*'). The Cronbach alpha of internal consistency for the three subscales ranged from .80 to .84. However, two scales were less reliable as they showed a weaker Cronbach alpha of .50. Both questionnaires were translated into Arabic to ensure that students understood each item, and then were sent to the Department of Research Methodologies at IPA to review the validity of the translation. Two items were reworded based on recommendations from the Department.

Data Collection and Analysis

The questionnaires were sent to students via email using Google Forms. The links to the questionnaires was sent to 200 students in the advanced level of the institution during the sixth week of the course. The consent form was integrated in the first page of the survey and students were informed that their answers are anonymous and that completing this survey was entirely voluntary. Eighty out of 200 students voluntarily responded to the questionnaires - a response rate of 40%. This low response rate was expected as instruments were administered electronically, and according to Sheehan (2006) this distribution format has received less involvement from survey respondents since the late 1980s. That said, the researcher found no bias after analyzing the data, and findings were not generalized based on this sample.

All statistical analyses were carried out using JASP (Version 0.11.1). Descriptive statistics were calculated to get mean and standard deviation scores for all responses in the Motivation questionnaire and the MALQ. Then, Pearson's *r* correlation coefficients were calculated for the correlations between the four motivation types and the five metacognitive listening factors.

Results

To answer the first research question, mean, standard deviation, and range scores were calculated to identify the type of motivation students have towards learning English. In addition, the percentage of students answering each item on the Likert-scale questionnaire was calculated and presented in Appendix A.

Table 2

Descriptive Statistics for Motivation Subscales

Motivation type	N	M	SD	Range
Integrative	80	4.45	.92	26
Instrumental	80	4.17	1.16	30
Intrinsic	80	3.90	.84	24
Extrinsic	80	3.23	.86	20

Table 2 shows that the mean score for integrative motivation was higher than the other three motivation types. Approximately 64% of students strongly agreed with this integrative item "*Studying English enables me to understand English books or movies*", and 58% also strongly agreed with the integrative item "*Studying English enables me to discuss interesting topics in English with its speakers*". These two percentages constitute the highest percentages of students' total responses to the motivation questionnaire. Instrumental motivation scored the second highest mean score with 44% agreement on items such as "*Being proficient in English can lead to more success and achievements in life.*" Intrinsic and extrinsic motivation represented the lowest mean scores among all motivation types. However, extrinsic motivation was the lowest compared to the other types of motivation where only 11% of students chose 'Strongly agree' on extrinsic motives such as "*The main reason I need to learn English is to pass exams*". These results show that students are more integratively motivated, which answers the first research question.

Similar descriptive statistics were calculated to elicit students' most-used metacognitive listening strategy and answer the second research question. The percentage of students answering each item on the Likert-scale questionnaire was also calculated and is presented in Appendix B.

Table 3

Descriptive Statistics for Metacognitive Listening Strategies Subscales

Metacognitive Factor	N	M	SD	Range
Problem-solving	80	4.42	1.07	30
Planning/Evaluation	80	3.48	.98	25
Directed attention	80	2.70	.63	20
Mental translation	80	1.92	.7	15
Personal knowledge	80	1.84	.63	15

The data presented in Table 3 shows that the mean score for problem-solving strategies is higher than the other metacognitive listening strategies listed in the table. Nearly 37.5% of students strongly agreed on using the problem-solving strategy "*I use my experience and knowledge to help me understand*", whereas no student (0%) disagreed with using this strategy while listening to an oral text. Planning/evaluation strategies came next, followed by directed attention strategies. The mean of mental translation and personal knowledge strategies constituted the lowest scores with 1.92 and 1.84, respectively. The reported results show that students used more problem-solving strategies than the other four metacognitive listening strategies, which answers the second research question.

The third research question was answered by correlating each subscale of motivation with each subscale of metacognitive listening strategies using Pearson correlation coefficient.

Table 4

Correlation between Motivation Types and Listening Strategies

Variables	*r*	
Intrinsic motivation		
● Planning/Evaluation	**.580*** **	
● Directed attention	.509***	
● Personal knowledge		.343**
● Mental translation	.396***	
● Problem-solving	.474***	
Extrinsic motivation		
● Planning/Evaluation	**.559*** **	
● Directed attention	**.558*** **	
● Personal knowledge	.455***	
● Mental translation	.411***	
● Problem-solving	.405***	
Integrative motivation		
● Planning/Evaluation	**.592*** **	
● Directed attention	**.597*** **	
● Personal knowledge	.445***	
● Mental translation	.439***	
● Problem-solving	.469***	
Instrumental motivation		
● Planning/Evaluation	**.617*** **	
● Directed attention	**.648*** **	
● Personal knowledge	.456***	
● Mental translation	.468***	
● Problem-solving	**.517*** **	

* p < .05, ** p < .01, *** p < .001

As demonstrated in Table 4, all correlations were positive, ranging from a strong correlation of .648 ($p < .001$) to a moderately strong correlation of .343 ($p < .01$). They were also

significant at the .001 level, excluding only the correlation between intrinsic motivation and personal knowledge which was significant at the .01 level ($p < .01$).

First, intrinsic motivation showed only one strong relationship with planning/evaluation strategies, whereas it showed a moderate correlation with the other four listening strategies. However, the correlations between intrinsic motivation, mental translation and personal knowledge listening strategies were not as strong as the other correlations in Table 4 ($r = .396$ ($p < .001$), .343 ($p < .01$)), respectively. Although these two correlations were moderately strong, they represented the weakest relationships among motivation types and metacognitive listening strategies.

Second, unlike intrinsic motivation, extrinsic motivation correlated strongly with two listening strategies (i.e., planning/evaluation and directed attention). However, planning/evaluation strategies correlated more strongly with intrinsic motivation than with extrinsic motivation. The other three listening strategies also demonstrated a moderate relationship with extrinsic motivation.

Third, similar to extrinsic motivation, integrative motivation showed a robust correlation with planning/evaluation and directed attention strategies, yet this relationship was stronger than the relationship with both extrinsic and intrinsic motivation. Personal knowledge, mental translation, and problem-solving strategies revealed moderately strong correlations with integrative motivation.

Fourth, the correlation between instrumental motivation, planning/evaluation, and directed attention strategies constituted the strongest correlation compared to the other motivation types with a correlation of .617 ($p < .001$) and .648 ($p < .001$). Moreover, contrary to the moderately strong relationships between problem-solving strategies and the previous three motivation types, instrumental motivation correlated more substantially with problem-solving ($r = .517$, ($p < .001$)). The correlation between mental translation and personal knowledge strategies remained moderately strong as the correlation was with all other motivation types.

Overall, it seems that all motivation types demonstrated a strong positive relationship with two listening strategies (planning/evaluation and directed attention), whereas they showed a moderate relationship with the other remaining three strategies. The only difference was the strong correlation between instrumental motivation and problem-solving strategies. Moreover, no weak or negative correlations appeared among all subscales, and all correlations were statistically significant.

Discussion

The present study investigated Saudi students' ($N = 80$) motivation towards learning English, the frequently used metacognitive listening strategy they use while listening to a text, and the relationship between motivation types and metacognitive listening strategies. With regard to the balance between integrative and instrumental motivation, the results indicated that students are more integratively motivated. These results present new findings as most of the

literature regarding the motivation of Saudi students suggested that students are instrumentally motivated (Al-Otaibi, 2004; Moskovsky & Alrabai, 2009). However, these studies are older, and the demographic of Saudi Arabia has changed since those studies were completed. Students may have more integrative motivation now compared to previous studies because of the educational and economical transition that is happening now in Saudi Arabia. Education is receiving more attention and the government is offering scholarships for students to complete their studies in English-speaking countries. This can be supported by the motivation questionnaire, as nearly 44% of students strongly agreed with the integrative motivation item "*Knowledge of English will help me understand English culture*". It is also possible that students' advanced proficiency level in English has influenced their own motivation and thinking; thus, they are not only studying English to pass exams. Gardner and Lambert (1972) proposed that an individual with an integrative orientation would display greater motivation to study a language, and thus would achieve success in the L2. In the present study, instrumental motivation still displayed a strong mean score and came in second place following integrative motivation. This result was predictable considering the globalization and economic growth Saudi Arabia is experiencing. The current trends might lead students to learn English in order to be competitive in the job market and gain a good job. Finally, it was not surprising that extrinsic motivation had the lowest mean score compared to the other types of motivation. Many scholars previously claimed that students should not be studying English for only extrinsic factors, or learning would be of no use (Deci & Ryan, 1985; Dörnyei, 1998).

Regarding the second research question, advanced students at IPA appeared to use more problem-solving strategies and less mental translation strategies. These results are consistent with the literature (Alhaisoni, 2017; Altuwairesh, 2016; Kassaian & Ghadiri, 2011; Vandergrift, 2003). These studies have found that higher proficiency learners tend to use more problem-solving strategies which shows that they are good at inferencing. Higher proficiency learners also use fewer translation strategies while listening because they are more confident with their language skills and do not need to rely on their L1s, as less proficient learners would. Contrary to the findings of Alhaisoni (2017), Altuwairesh (2016), and Kassaian and Ghadiri (2011), students in the current study showed better planning/evaluation strategies, which possibly means that the participants in this study have relatively higher goal-setting skills and can be considered more autonomous in their learning. However, as illustrated in Table 3, the difference in mean score between planning/evaluation strategies and problem-solving is rather large, which means that even though students might have reported higher use of planning/evaluation strategies, they still would benefit from more training in this area. Finally, personal knowledge strategies constituted the lowest proportion of students' use of metacognitive listening strategies. This finding was not unexpected as advanced students may feel that listening is not as difficult as other language skills such as reading or writing. Nevertheless, personal knowledge strategies merit further investigation in the Saudi context as no study, to the author's best knowledge, has explored the use of these strategies among Saudi learners.

In response to the third research question, planning/evaluation and directed attention were the only two strategies that consistently and strongly correlated with all motivation types. This

consistency suggests that the more motivated the listener, the greater the tendency to report planning/evaluation and directed attention strategies. Also, as reported in the results, the correlation between instrumental motivation and these two particular strategies was the strongest compared to the other motivation types. One potential explanation for this finding is that students with instrumental goals such as getting employed or the desire to integrate into the business world may have the skills of good planning and focused goal setting, as well as directing their attention towards their goals. That being said, it is interesting to note that even though students reported using problem-solving strategies more frequently than any other listening strategy (see Table 3), these strategies correlated strongly with only instrumental motivation. This result could be due to the high standard deviation score, which means that although students reported frequent use of problem-solving strategies, their responses varied greatly across the items in that subscale. It was not surprising that personal knowledge and mental translation strategies did not correlate as strongly with all motivation types as the other listening strategies did. One explanation of this moderately strong correlation is the low mean score reported in Table 2 for these strategies. Another explanation could be the weak internal consistency of the subscales measuring these two strategies, which might have influenced the results. Overall, these findings are in contrast with findings reported by Harputlu and Ceylan (2014), Kassaian and Ghadiri (2011), and Vandergrift (2005), in which they found some negative, insignificant, and weak correlations between motivation and metacognitive listening strategies. However, the findings of this study support the predictions of those authors; that is the correlation between motivation types and metacognitive listening strategies would result in more significant correlations if tested on a larger population. This significance suggests that there is a meaningful relationship between motivation and the use of metacognitive listening strategies in the case of advanced students at IPA and that this relationship is not due to chance, a finding that is consistent with the wide literature.

Conclusion and Classroom Implications

The current study investigated the type of motivation advanced level students (N = 80) have towards learning English, their most frequently used metacognitive listening strategy in class, and the relationship between four motivation types and five metacognitive listening strategies. The results of this study indicated that integrative motivation is the most common among the participants, and that problem-solving strategies are used more than the other four listening strategies. Also, another finding was that none of the motivation types correlated negatively or insignificantly with the metacognitive listening strategies, which contrasted with previous research that investigated the correlation between these two areas. In addition, the results demonstrated that planning/evaluation and directed attention strategies correlated strongly with all motivation types.

There are a couple of limitations to the present study. One limitation is that due to time constraints and lack of accessibility, only advanced male students were targeted. Therefore, it should be noted that these findings cannot be generalized to all Saudi learners and that they are only representative of the sample reported in this study. Another limitation is that this study only

used questionnaires to collect data from participants. Even though questionnaires are used more often in quantitative studies and considered a convenient and sufficient way to gather large amounts of data, triangulating this with some qualitative methods could increase the validity of the study's methodology.

Despite the limitations mentioned above, this study has some classroom implications. First, since students reported weak usage of some metacognitive listening strategies in the classroom, teachers are advised not to teach those strategies as they are mostly used by less skilled listeners as shown in this study and in the wide literature (Alhaisoni, 2017; Altuwairesh, 2016; Goh & Yusnita, 2006; Looi-Chin et al., 2017; Vandergrift, 2003; Vandergrift & Tafaghodtari, 2010). Instructors can use the MALQ in their classrooms to determine which metacognitive strategy students are struggling with and implement lesson plans that explicitly target that strategy. Second, as was apparent from the results of this study, motivation has a strong relationship with the use of metacognitive strategies, which should encourage teachers to teach metacognitive listening strategies to maintain or bolster students' motivation.

In sum, although this study used more participants compared to other studies conducted previously, future researchers could replicate this study with a larger population, across proficiency levels, and with a sample that includes both males and females. Also, as was mentioned previously, this study is considered the first of its kind in the Saudi context. Therefore, future researchers in Saudi Arabia are encouraged to use this study as a base for further investigation into the relationship between motivation and metacognitive listening strategies.

Acknowledgements
I would like to thank the two anonymous reviewers for their valuable feedback and suggestions.

Bio

Raed Alzahrani is a faculty member at the Institute of Public Administration (IPA), English Language Center (ELC). He holds an MA degree from the Department of English at Colorado State University in TEFL/TESL. He is currently a PhD student at the Department of Second Language Studies at the University of Hawaii at Mānoa. His research interests revolve around instructed SLA, L2 motivation, motivational design of materials, and L2 pedagogy.

References

Alfallaj, F. S. (1998). *An evaluative study of teaching English as a foreign language at the Junior College of Technology in Buraydh* [Unpublished doctoral dissertation]. Indiana University of Pennsylvania.

Alhaisoni, E. (2017). Metacognitive listening strategies used by Saudi EFL medical students. *English Language Teaching*, *10*(2), 114-122. https://doi.org/10.5539/elt.v10n2p114

AlMaiman, I. (2005). *A study of seventh-grade Saudi students' motivation level to learn English as a foreign language* [Unpublished doctoral dissertation]. University of Kansas.

Al-Otaibi, G. N. (2004). *Language learning strategy use among Saudi EFL students and its relationship to language proficiency level, gender and motivation* [Unpublished doctoral dissertation]. Indiana University of Pennsylvania.

Altuwairesh, N. (2016). EFL Saudi undergraduate students' use of metacognitive listening strategies. *Arab World English Journal*, *8*(1), 78-93. https://dx.doi.org/10.24093/awej/vol7no1.6

Deci, E.L. (1995). *Why we do what we do. The dynamics of personal autonomy*. Putnams's Sons.

Deci, E. L., & Ryan, R.M. (1985). *Intrinsic motivation and self- determination in human behavior*. Plenum.

Dörnyei, Z. (1994). Motivation and motivating in the foreign language classroom. *The Modern Language Journal*, *78*(3), 273–284. https://doi.org/10.1111/j.1540- 4781.1994.tb02042.x

Dörnyei, Z. (1998). Motivation in second and foreign language learning. *Language Teaching*, *31*(3), 117–135. https://doi.org/10.1017/s026144480001315x

Dörnyei, Z. (2003). Attitudes, orientations, and motivations in language learning: Advances in theory, research, and applications. *Language Learning*, *53*(Suppl1), 3–32. https://doi.org/10.1111/1467-9922.53222

Dörnyei, Z., & Csizér, K. (1998). Ten commandments for motivating language learners: Results of an empirical study. *Language Teaching Research*, 2(3), 203–229. https://doi.org/10.1177/136216889800200303

Dörnyei, Z., & Schmidt, R. W. (2001). *Motivation and second language acquisition*. Honolulu, HI: Second Language Teaching & Curriculum Center, University of Hawaii at Mānoa.

Dörnyei, Z., & Skehan, P. (2003). Individual differences in second language learning. In C. J. Doughty & M. Long (Eds.), *The handbook of second language acquisition*, 589–630. https://doi.org/10.1002/9780470756492.ch18

Flavell, J. H. (2000). Development of children's knowledge about the mental world. *International Journal of Behavioral Development*, *24*(1), 15–23. https://doi.org/10.1080/016502500383421

Gardner, R. C. (1985). *Social psychology and second language learning: The role of attitudes and motivation*. Edward Arnold.

Gardner, R. C., & Lambert, W. E. (1972). *Attitudes and motivation in second–language learning*. Newbury House.

Goh, C., & Yusnita, T. (2006). Metacognitive instruction in listening for young learners. *ELT Journal*, *60*(3), 222–232.

Hamouda, A. (2013). An investigation of listening comprehension problems encountered by Saudi students in the EL listening classroom. *International Journal of Academic Research in Progressive Education and Development*, *2*(2), 113-155.

Harputlu, L., & Ceylan, E. (2014). The effects of motivation and metacognitive strategy use on EFL listening proficiency. *Procedia - Social and Behavioral Sciences*, *158*, 124–131. https://doi.org/10.1016/j.sbspro.2014.12.056

Kassaian, Z., & Ghadiri, M. (2011). An investigation of the relationship between motivation and metacognitive awareness strategies in listening comprehension: The case of Iranian EFL learners. *Journal of Language Teaching and Research*, *2*(5), 1069-1079. https://doi.org/10.4304/jltr.2.5.1069-1079

Liu, M., & Huang, W. (2011). An exploration of foreign language anxiety and English learning motivation. *Education Research International*. http://dx.doi.org/10.1155/2011/493167

Looi-Chin, M., Unin, N., & Johari, A. (2017). Metacognitive awareness strategies for listening comprehension. *The Asian Journal of English Language and Pedagogy*, *5*(1). 11-19. https://doi.org/10.37134/ajelp.vol5.2.2017

Magaldi, L.G. (2010). Metacognitive strategies based instruction to support learner autonomy in language learning. *Revistacanaria de Estudiosingleses*, *61*, 73–86.

Moskovsky, C., & Alrabai, F. (2009). Intrinsic motivation in Saudi learners of English as a foreign language. *The Open Applied Linguistics Journal*, *2*(1), 1-10. https://doi.org/10.2174/1874913500902010001

Schmidt, R., Boraie, D., & Kassabgy, O. (1996). Foreign language motivation: internal structure and external connections. In R.L. Oxford (Ed.), *Language learning motivation: pathways to the new century*, *2*, 9-70. University of Hawai'i, Second Language Teaching and Curriculum Center.

Schmidt, R., & Watanabe, Y. (2001). Motivation, strategy use, and pedagogical preferences in foreign language learning. In Z. Dörnyei & R. Schmidt (Eds.), *Motivation and second language acquisition* (Technical Report #23, pp. 313–359). Honolulu: University of Hawai‘i, Second Language Teaching and Curriculum Center.

Sheehan, K. B. (2006). E-mail survey response rates: A review. *Journal of Computer-Mediated Communication*, *6*(2). https://doi.org/10.1111/j.1083-6101.2001.tb00117.x

Vandergrift, L. (2003). Orchestrating strategy use: Toward a model of the skilled second language listener. *Language Learning*, *53*, 463– 496.

Vandergrift, L. (2004). Listening to learn or learning to listen? *Annual Review of Applied Linguistics*, 24, 3-25.

Vandergrift, L. (2005). Relationships among motivation orientations, metacognitive awareness and proficiency in L2 listening. *Applied Linguistics*, *26*(1), 70–89. https://doi.org/10.2174/1874913500902010001

Vandergrift, L., Goh, C., Mareschal, C., & Tafaghodtari, M. (2006). The metacognitive listening awareness questionnaire: Development and validation. *Language Learning*, *56*(3), 431-462. https://doi.org/10.1111/j.1467-9922.2006.00373.x

Vandergrift, L., & Tafaghodtari, M. H. (2010). Teaching L2 learners how to listen does make a difference: An empirical study. *Language Learning*, *60*(2), 470–497. https://doi.org/10.1111/j.1467-9922.2009.00559.x

Wenden, A. (1998). Metacognitive knowledge and language learning. *Applied Linguistics*, *19*(4), 515–537.

Ziahosseini, S. M., & Salehi, M. (2007). An investigation of the relationship between motivation and language learning strategies. *Pazhuhesh-e Zabanha-ye Khareji*, *41*(Special Issue), 85-107.

Appendix A

Responses to Motivation Questionnaire in Percentages

items	Strongly agree	Agree	Partially agree	Partially disagree	Disagree	Strongly disagree
I really enjoy learning English.	43.8%	30.0%	18.8%	2.5%	2.5%	2.5%
My language class is a challenge I enjoy.	47.5%	21.3%	23.8%	3.8%	3.8%	0.0%
When class ends, I often wish that we could continue.	10.0%	7.5%	18.8%	18.8%	23.8%	21.3%
I would take this speaking/listening class even if it was not required.	18.8%	15.0%	21.3%	11.3%	18.8%	15.0%
I enjoy using English outside of class whenever I have a chance.	50.0%	18.8%	20.0%	5.0%	3.8%	2.5%
Learning English is a boring activity.	7.5%	6.3%	10.0%	15.0%	22.5%	38.8%
The main reason I am taking this class is that my parents want me to improve my English.	12.5%	6.3%	6.3%	7.5%	20.0%	47.5%
The main reason I need to learn English is to pass exams.	11.3%	7.5%	11.3%	10.0%	23.8%	36.3%
If I can speak English, I will have a marvelous life.	48.6%	12.1%	12.1%	0.9%	26.2%	0.0%
Everybody in Saudi Arabia should speak English.	27.5%	21.3%	22.5%	8.8%	8.8%	11.3%
I am learning English to be more educated.	41.3%	18.8%	27.5%	6.3%	3.8%	2.5%
Studying English enables me to understand English books or movies.	63.8%	18.8%	11.3%	3.8%	1.3%	1.3%
Studying English enables me to discuss interesting topics in English with its speakers.	58.8%	18.8%	13.8%	3.8%	2.5%	2.5%
I want to be more a part of the cultural	18.8%	23.8%	17.5%	6.3%	13.8%	20.0%

group that speaks English.						
Studying English is an important part of education in Saudi Arabia.	50.0%	26.3%	15.0%	3.8%	3.8%	1.3%
Knowledge of English will help me understand English culture.	43.8%	22.5%	20.0%	5.0%	5.0%	3.8%
I am learning English because I would like to go and live in America, or any other English-speaking country.	12.5%	6.3%	7.5%	13.8%	13.8%	46.3%
Increasing my proficiency in English will help me gain more money.	20.0%	13.8%	31.3%	20.0%	7.5%	7.5%
I want to learn English because it is important to show my ability to others.	27.5%	16.3%	20.0%	15.0%	13.8%	7.5%
Being proficient in English can lead to more success and achievements in life.	43.8%	15.0%	27.5%	6.3%	3.8%	3.8%
Being proficient in English makes other people respect me.	16.3%	12.5%	23.8%	17.5%	12.5%	17.5%
I have to learn English because it is a requirement at IPA.	32.5%	20.0%	17.5%	10.0%	6.3%	13.8%
I learn English to have a job and support my family.	40.0%	13.8%	27.5%	7.5%	2.5%	8.8%

Appendix B

Responses to MALQ in Percentages

items	Strongly agree	Agree	Partially agree	Partially disagree	Disagree	Strongly disagree
Before I start to listen, I have a plan in my head for how I am going to listen.	30.0%	20.0%	27.5%	11.3%	2.5%	8.8%
I focus harder on the text when I have trouble understanding	37.5%	28.8%	22.5%	6.3%	1.3%	3.8%
I find that listening in English is more difficult than reading, speaking, or writing in English.	20.0%	6.3%	13.8%	17.5%	16.3%	26.3%
I translate in my head as I listen.	22.5%	16.3%	18.8%	13.8%	15.0%	13.8%
I use the words I understand to guess the meaning of the words I don't understand.	33.8%	26.3%	20.0%	11.3%	5.0%	3.8%
When my mind wanders, I recover my concentration right away	20.0%	17.5%	18.8%	22.5%	3.8%	17.5%
As I listen, I compare what I understand with what I know about the topic.	27.5%	26.3%	18.8%	18.8%	3.8%	5.0%
I feel that listening comprehension in English is a challenge for me.	18.8%	13.8%	16.3%	17.5%	10.0%	23.8%
I use my experience and knowledge to help me understand.	37.5%	21.3%	32.5%	5.0%	0.0%	3.8%
Before listening, I think of similar texts that I may have listened to.	18.8%	7.5%	28.8%	22.5%	10.0%	12.5%
I translate key words as I listen.	31.3%	18.8%	26.3%	12.5%	1.3%	10.0%
I try to get back on track when I lose concentration.	50.0%	16.3%	27.5%	2.5%	0.0%	3.8%
As I listen, I quickly adjust my interpretation if I realize that it is not correct.	23.8%	13.8%	27.5%	18.8%	7.5%	8.8%
After listening, I think back to how I listened, and about what I might do differently next time.	18.8%	17.5%	36.3%	15.0%	1.3%	11.3%
I don't feel nervous when I listen to English.	31.3%	32.5%	12.5%	7.5%	8.8%	7.5%
When I have difficulty understanding what I hear, I give up and stop listening.	12.5%	3.8%	7.5%	22.5%	13.8%	40.0%
I use the general idea of the text to help me guess the meaning of the words that I don't understand.	36.3%	20.0%	21.3%	11.3%	5.0%	6.3%
I translate word by word, as I listen.	17.5%	3.8%	30.0%	17.5%	12.5%	18.8%

When I guess the meaning of a word, I think back to everything else that I have heard, to see if my guess makes sense.	25.0%	20.0%	23.8%	22.5%	1.3%	7.5%
As I listen, I periodically ask myself if I am satisfied with my level of comprehension.	36.3%	17.5%	25.0%	8.8%	5.0%	7.5%
I have a goal in mind as I listen.	33.8%	17.5%	26.3%	8.8%	3.8%	10.0%

جامعة الملك سعود
King Saud University

Journal of Research in Language & Translation

Issue No. 2 Vol. 1 (2021)

The D-Linking Effect on Wh-Extractions from Islands and Non-Islands in L1 Speakers and L2 Learners of English

Saad M. Aldosari

College of Languages and Translation, Imam Mohammad Ibn Saud Islamic University, Riyadh, SA
smaldossari@imamu.edu.sa

Received: 13/7/2021; Revised: 15/10/2021; Accepted: 18/10/2021

الملخص

تبحث هذه الدراسة تأثير عبارات الاستفهام الانجليزية المرتبطة بالسياق على قبولية الأسئلة التي انتقلت فيها عبارات الاستفهام من بنية تركيبية (جزيرة) لا تسمح بنقل جزء منها، كما هو في المثال:

*what$_i$ /*which movie$_i$ does she wonder [$_{island}$ why he might hate __$_i$]?

شارك في الدراسة سبعة وعشرون شخصاً وكانت لغتهم الأم هي الانجليزية، وواحد وثلاثون متعلماً للانجليزية لغتهم الأم العربية النجدية. قام المشاركون في الدراسة بالحكم نحوياً على صحة أسئلة انتقلت عبارات الاستفهام فيها من بنية تركيبية لا تسمح بنقل جزء منها وأسئلة أخرى انتقلت عبارات الاستفهام فيها من بنية تركيبية تسمح بنقل جزء منها، وذلك باستخدام مقياس تقييم يتراوح بين 1 (الجملة غير طبيعية تماما) و7 (الجملة طبيعية تماما). وأوضحت الدراسة أن متحدثي الانجليزية الأصليين والمتعلمين حكموا على الأسئلة التي انتقلت عبارات الاستفهام فيها من بنية تركيبية لا تسمح بنقل جزء منها بأنها غير صحيحة بينما حكموا على الأسئلة التي انتقلت عبارات الاستفهام فيها من بنية تركيبية تسمح بنقل جزء منها بأنها صحيحة. كما أوضحت النتائج أن عبارات الاستفهام المرتبطة بالسياق حسنت من قبول الأسئلة التي انتقلت فيها عبارات الاستفهام من بنية تركيبية لا تسمح بنقل جزء منها، ويعود سبب ذلك إلى أن عبارات الاستفهام المرتبطة بالسياق تشير إلى أفراد يمكن أن تشارك في عمليات جبرية رياضية.

جامعة الملك سعود
King Saud University

Journal of Research in Language & Translation

Issue No. 2 Vol. 1 (2021)

Abstract

This study examines the effect of discourse-linked (d-linked) *wh*-phrases on acceptability of *wh*-extractions from islands and non-islands. Native speakers of English (*n* = 27) and Najdi Arabic learners of English (*n* = 31) rated on a 7-point scale their acceptability of *wh*-questions with bare and d-linked *wh*-extractions from islands and non-islands (e.g., *what$_i$ /*which movie$_i$ does she wonder [why he might hate __$_i$]?). Learners, like native speakers, showed sensitivity to island constraints as reflected in their low acceptability ratings of *wh*-extractions from islands. Learners, like native speakers, were also more sensitive to strong (universal constraints) than to weak islands (language-specific constraints), as predicted by Belikova and White's (2009) proposal. Moreover, both native speakers and learners exhibited a d-linking effect on *wh*-extractions from *wh*-islands, rating d-linked higher than bare *wh*-extractions. As for the source of this d-linking effect, the results of native speakers rather than learners, who could have been misled by the semantic cues of d-linked *wh*-phrases, suggest that this d-linking effect is more likely caused by the d-linked *wh*-phrase's denotation of discrete individuals as claimed by the semantic account of d-linking effect.

Keywords: L2 learners, syntax, island constraints, d-linking, Najdi Arabic

---

Sensitivity to island constraints on *wh*-movement is a topic of interest in second language acquisition and native psycholinguistics literature. In English, for example, *wh*-questions involve *wh*-movement (Chomsky, 1981, 1986). In (1), the *wh*-phrase ("what") originates in the object position after the verb ("see") and moves to the beginning of the sentence, leaving a trace.

(1) **What$_i$** did you see $__{}_i$?

However, *wh*-phrases cannot move from certain syntactic constituents, which are called *islands* (Ross, 1967). These islands include adjunct clauses (2a), relative clauses (RCs; 2b), complex NPs (2c), and *wh*-islands (2d).

(2)

a.	***What$_i$** did she clean the room [**after he took** $__{}_i$]?	ADJUNCT CLAUSE
b.	***What$_i$** did she see [**the author who wrote** $__{}_i$]?	RELATIVE CLAUSE
c.	***What$_i$** did she deny [**the fact that he stole** $__{}_i$]?	COMPLEX NP
d.	***What$_i$** did she wonder [**where he found** $__{}_i$]?	*WH*-ISLAND

English native speakers give low acceptability judgments to ungrammatical sentences that violate island constraints as in (2), suggesting sensitivity to island constraints (e.g., Sprouse et al., 2012).

Second language (L2) research has focused on the acquisition of island constraints to argue for or against L2 learners' access to Universal Grammar (UG). Previous studies that tested L2 acquisition of island constraints did not show consistent results. Some studies argued that sensitivity to island constraints is possible for L2 learners regardless of L1 (e.g., Li, 1998; Martohardjono, 1993). Other studies argued that sensitivity to island constraints is possible only for L2 learners whose L1 instantiates overt *wh*-movement (e.g., Hawkins & Chan, 1997; Johnson & Newport, 1991). Belikova and White (2009) pointed out that, although previous studies argued for or against island sensitivity, further examination of their results by island type showed that L2 learners were more sensitive to specific types of islands (i.e., adjunct clauses, RCs, sentential subjects) than others (i.e., complex NPs, *wh*-islands). To account for variations in L2 learners' sensitivity to island types, Belikova and White (2009) proposed, based on Huang's (1982) revised Condition on Extraction Domains, that L2 learners are expected to be more sensitive to strong islands (universal constraints) than to weak islands (language-specific constraints) if they have access to UG.

Although native speakers of English are sensitive to islands, their sensitivity is affected by the linguistic properties of the extracted *wh*-phrase. Following terminology introduced in Pesetsky (1987), discourse-linked (d-linked) *wh*-phrases (e.g., "which movie") arguably weaken island effects and increase the acceptability of *wh*-extractions from islands (e.g., Hofmeister & Sag, 2010). In (3a), the extracted *wh*-phrase (e.g., "what") is a bare *wh*-phrase, and the sentence is expected to receive low acceptability.

(3)

a. ***What** does he wonder [why she might hate __]?
b. ***Which movie** does he wonder [why she might hate __]?

However, when the bare *wh*-phrase (e.g., "what") is replaced by a d-linked *wh*-phrase (e.g., "which movie") as in (3b), the sentence is expected to receive higher acceptability. The d-linking effect on acceptability of *wh*-extractions from islands is surprising, and there is currently debate in psycholinguistics about the source of this d-linking effect (e.g., Alexopoulou & Keller, 2013; Goodall, 2015; Hofmeister & Sag, 2010). Under the complexity account (e.g., Hofmeister & Sag, 2010), this d-linking effect is caused by the semantic and

structural complexity of the d-linked *wh*-phrase. Under the semantic account (e.g., Szabolcsi & Zwarts, 1993, 1997), however, this d-linking effect is caused by the d-linked *wh*-phrase's semantic denotation of discrete individuals.

To further investigate island sensitivity and d-linking effect on *wh*-extractions from islands, in the present study I tested English native speakers and Najdi Arabic learners of English to answer four questions. The first question is whether Najdi learners can show sensitivity to island constraints on *wh*-movement in English. If so, are they more sensitive to strong (universal constraints) than to weak islands (language-specific constraints), as predicted by Belikova and White (2009)? If L2 learners show island sensitivity as English natives do, this introduces the third question: Is this island sensitivity weakened by d-linking? If so, this raises the fourth question: Is this d-linking effect caused by the complexity of the d-linked *wh*-phrase as claimed by the complexity account or by the d-linked *wh*-phrase's denotation of discrete individuals as claimed by the semantic account.

Literature Review

I first give an overview of *wh*-movement and its island constraints in Najdi Arabic. Next, I review acceptability studies that examined L2 acquisition of island constraints. Then, I review two accounts of d-linking effect and the studies that tested the d-linking effect on *wh*-extractions. Finally, I discuss the details of the present study.

Linguistic Facts in Najdi Arabic

Wh-questions in Arabic dialects are formed via a variety of strategies. In Modern Standard Arabic, for example, *wh*-questions can be formed by moving the *wh*-phrase to the beginning of the sentence (4) or by a strategy of resumption (5)[1] (e.g., Alotaibi & Borsley, 2013; Aoun et al., 2010).

(4) **man$_i$** zaarat __$_i$ naadia?
who visited.3fs Nadia
'Who did Nadia visit?'

(5) man zaarat-**hu** naadia?
who visited.3fs-him Nadia
'Who did Nadia visit?'

Tucker et al. (2019) conducted systematic experimental research and showed that *wh*-movement in Modern Standard Arabic is sensitive to adjunct islands (6)[2], complex NP islands and *wh*-islands.

(6) ***ʔajja ħaqiiba$_i$ taqlaqu [ʔiðaa nasiija __$_i$ ʔal-muħaamii fii-l-maktab]?**
which briefcase worry.2ms [if forgot.3ms the-lawyer at-the-office]
'**Which briefcase$_i$** do you worry [**if the lawyer forgot__$_i$ at the office**]?'

In Palestinian Arabic, *wh*-questions can be formed via *wh*-movement, which is sensitive to island constrains (e.g., Shlonsky, 2002). Similarly, *wh*-questions in Lebanese Arabic can be formed via *wh*-movement, which is also sensitive to island constraints (e.g., Aoun et al., 2010). Like many dialects of Arabic, Najdi Arabic forms *wh*-questions via *wh*-movement (7) and makes use of the in-situ strategy (8) and resumption strategy (9)[3] (e.g., Albaty, 2013).

[1]The examples in (4) and (5) are from Aoun et al. (2010), p. 132.
[2]The example in (6) is from Tucker et al. (2019), p. 54.
[3]The examples in (7), (8) and (9) are from Albaty (2013), p. 1.

(7) **min$_i$** kallam Ahmad __$_i$ il-yum?
who called Ahmad the-day
'Who(m) did Ahmad call yesterday?'

(8) kallam-t ams miin?
called-2ms yesterday who
'Who(m) did you call yesterday?'

(9) min illi kalam-t-h ams?
who that called-2ms -3ms yesterday
'Who(m) did you call yesterday?'

In Najdi Arabic, *wh*-movement is sensitive to island constraints. The *wh*-questions in (10) and (11) [4] are ungrammatical because of a violation of a *wh*-island constraint and a violation of a RC island constraint respectively.

(10) ***ayy rjal$_i$** 9alima-ni Ali [**mita zar** __$_i$]
which man told.3ms-me Ali [when visited.3ms]

'**Which man$_i$** did Ali tell me [**when he visited** __$_i$]?'

(11) ***ayy rsalah$_i$** shakr ar-rjal [**al-bint alli kitab-t** __$_i$]
which letter thanked.3ms the-man [the-girl that wrote-3fs]
'Which letter$_i$ did the man thank [the girl who wrote __$_i$]?'

Studies of Island Constraints in L2 Acquisition

Chomsky (1973) proposed the *subjacency principle* to account for all types of island constraints, which states that a *wh*-phrase cannot cross more than one bounding node, IP or DP, in each single movement. In (12), the *wh*-questions are ungrammatical because the *wh*-phrase "what" crosses more than one bounding node, DP, or IP in each movement.

(12)

a. ***What$_i$** did [$_{IP}$ she clean the room [$_{PP}$ after [$_{IP}$ he took __$_i$]]]? ADJUNCT CLAUSE
b. ***What$_i$** did [$_{IP}$ she see [$_{DP}$ the author [$_{CP}$ who wrote __$_i$]]]? RELATIVE CLAUSE
c. ***What$_i$** did [$_{IP}$ she deny [$_{DP}$ the fact [$_{CP}$ that [$_{IP}$ he stole __$_i$]]]]? COMPLEX NP
d. ***What$_i$** did [$_{IP}$ she wonder [$_{CP}$ where [$_{IP}$ he found __$_i$]]]? *WH*-ISLAND

Under this version of island constraints, L2 learners are expected to treat all types of islands similarly if they have access to UG. However, previous L2 studies (e.g., Johnson & Newport, 1991; Li, 1998; Schachter, 1990) that adopted this version of island constraints showed that learners were more sensitive to specific types of islands (i.e., adjunct clauses, RCs, sentential subjects) than others (i.e., complex NPs, *wh*-islands).

Martohardjono (1993), for example, examined sensitivity to island constraints by testing Italian learners of English. In Italian, as in Najdi Arabic, *wh*-questions are formed via *wh*-movement, which is sensitive to island constraints. The results showed that Italian learners, like English native speakers, treated island types differently, being more sensitive to adjunct islands and RC islands than to complex NP islands and *wh*-islands.

To account for variations in L2 learners' performance on types of islands, Belikova and White (2009) adopted an alternate version of island constraints. This version is a revised version of Huang's (1982) Condition on Extraction Domains (CED), under which extraction from non-complements is universally impossible. Therefore, extraction from strong islands

[4]The judgments provided for (10) and (11) come from native speakers' intuitions and not from systematic experimental investigation.

(i.e., adjunct clauses, RCs, and sentential subjects) is not possible universally because strong islands are non-complements. However, this entails that the ungrammaticality of extraction from weak islands (e.g., *wh*-islands, complex NPs) can be attributed to parametric variation. Based on Huang's revised CED, Belikova and White (2009) proposed that learners should be more sensitive to strong than to weak islands because strong islands are universal constraints on extraction while weak islands are language-specific constraints.

Although native speakers of English are sensitive to islands, sensitivity is affected by the type of extracted *wh*-phrase. For example, d-linked *wh*-phrases (e.g., "which movie") as in (13b) compared to bare *wh*-phrases (e.g., "what") as in (13a) have been argued to weaken island effects and increase the acceptability of *wh*-extractions from islands (e.g., Hofmeister & Sag, 2010).

(13)

a. ***What** does he wonder [why she might hate __]?
b. ***Which movie** does he wonder [why she might hate __]?

In (13a), the *wh*-phrase ("what") that is extracted from a *wh*-island is a bare *wh*-phrase and the sentence is expected to receive low acceptability. However, when the bare *wh*-phrase is replaced by a d-linked *wh*-phrase ("which movie") that prompts an answer that can be inferred from referents already introduced into the discourse as in (13b), the sentence is expected to receive higher acceptability. The d-linking effect on *wh*-extractions from islands presents an interesting puzzle, and it is not clear how d-linking interacts with syntactic constraints and increases acceptability of *wh*-extractions from islands. Many accounts have been proposed to explain the source of d-linking effect on *wh*-extractions from islands. The next section reviews two accounts of d-linking effect on *wh*-extractions from islands and the studies that tested these two accounts.

Accounts of D-Linking Effect on *Wh*-Extractions

Under the complexity account (e.g., Hofmeister & Sag, 2010), the d-linking effect on *wh*-extractions from islands is caused by the complexity of the extracted *wh*-phrase. This account claims that semantically and structurally more complex *wh*-phrases (e.g., "which movie") have stronger mental representations compared to bare *wh*-phrases (e.g., "what") and are thus easier to retrieve from working memory at the gap site (the subcategorizing verb). This ease of processing is claimed to result in higher acceptability.

To support the complexity view of d-linking effect, Hofmeister and Sag (2010) manipulated the type of *wh*-phrase in a self-paced reading task to show that complex *wh*-phrases compared to bare *wh*-phrases can facilitate processing of *wh*-extractions from *wh*-islands and improve their acceptability. Native speakers of English first read a declarative background sentence, and then read either a question with a bare *wh*-extraction from a *wh*-island (14a), a question with a d-linked *wh*-extraction from a *wh*-island (14b), or a baseline question with a bare *wh*-extraction from a *that*-clause (14c)[5].

(14) BACKGROUND SENTENCE
Albert learned that the managers dismissed the employee with poor sales after the annual performance review.

BARE CONDITION

a. ***Who** did Albert learn whether they **dismissed** __ after the annual performance review?

[5]The example in (14) is from Hofmeister & Sag (2010), p. 394.

WHICH CONDITION

b. ***Which employee** did Albert learn whether they **dismissed** __ after the annual performance review?

BASELINE CONDITION

c. Who did Albert learn that they dismissed after the annual performance review?

The results showed faster reading times for the complex *wh*-phrase condition (14b) than for the bare *wh*-phrase condition (14a) at the three regions (e.g., "after the annual") that follow the embedded verb (e.g., "dismissed") inside the island, where the retrieval of *wh*-phrase from working memory is expected to take place. Hofmeister and Sag (2010) argued that this suggests that processing of *wh*-extractions from *wh*-islands can be facilitated when the complexity of *wh*-phrase is increased.

Like Hofmeister and Sag (2010), Goodall (2015) also claimed the d-linking effect is caused by the complexity of the extracted *wh*-phrase. Goodall tested the d-linking effect on *wh*-extractions from islands and non-islands by manipulating the type of *wh*-phrase (bare vs. complex) and the type of the structure in which the gap was located (complex NP vs. *wh*-clause vs. *that*-clause) in six conditions using a 2 × 3 design, as in (15)[6].

(15) UNGRAMMATICAL / COMPLEX NP ISLAND

a. ***What / *Which of the cars** do you believe the claim that he might buy ___?

UNGRAMMATICAL / *WH*-ISLAND

b. ***What** / ***Which of the cars** do you wonder who might buy ___?

GRAMMATICAL / NON-ISLAND

c. **What / Which of the cars** do you believe that he might buy ___?

Goodall (2015) tested the complexity account, which claims that complex *wh*-phrases increase the acceptability because they are easier to retrieve at the gap site regardless of whether the gap was located inside an island or non-island structure. If this claim is right, there should be an increase in acceptability of d-linked *wh*-extractions from both islands (i.e., complex NP islands, *wh*-islands) and non-islands (*that*-clauses) as compared to their bare counterparts. Using a 7-point rating scale, with 7 being *very good*, English native speakers, as predicted, rated d-linked *wh*-extractions from both islands and non-islands higher than their bare counterparts, supporting the complexity account of d-linking effect.

Unlike Hofmeister and Sag (2010) and Goodall (2015), Alexopoulou and Keller (2013) argued the d-linking effect is driven by semantic factors. Under the semantic account (Szabolcsi & Zwarts, 1993, 1997), which views sensitivity to weak islands as a semantic phenomenon, d-linked *wh*-phrases increase the acceptability of *wh*-extractions from weak islands because they denote discrete individuals that can participate in the semantic Boolean operations (e.g., intersection, union, complementation) necessary for the interpretation of weak islands. However, bare *wh*-phrases are not good extractors because they usually denote kinds that cannot be collected into sets that form the semantic Boolean operations.

To support the semantic view of d-linking effect, Alexopoulou and Keller (2013) examined the d-linking effect on *wh*-extractions from islands and non-islands as in (16)[7].

(16) *WHETHER* ISLAND EXTRACTION

a. ***What/*What movie/*Which movie/*Which of the movies** does Jean wonder whether they will watch ___ at the cinema?

[6]The example in (15) is from Goodall (2015), p. 4.

[7]The example in (16) is from Alexopoulou & Keller (2013), p. 18.

MAIN CLAUSE EXTRACTION

b. **What/What movie/Which movie/Which of the movies** will they watch ___ at the cinema?

THAT-CLAUSE EXTRACTION

c. **What/What movie/Which movie/Which of the movies** does Mary think they will watch ___ at the cinema?

Alexopoulou and Keller (2013) tested native speakers of English who exhibited a d-linking effect on *wh*-extractions from *whether* islands (16a), with *which N* condition (e.g., "which movie"), being rated higher than *what* condition (e.g., "what"). They attributed this d-linking effect to the critical property of the distinction between kind denoting *wh*-phrases (e.g., "what") and individual denoting *wh*-phrases (e.g., "which movie"). They argued that d-linked *wh*-phrases facilitate processing of *wh*-extractions from weak islands because they denote discrete individuals that can participate in the semantic Boolean operations necessary for the interpretation of weak islands as proposed by Szabolcsi and Zwarts (1993). However, they did not find a d-linking effect on *wh*-extractions from non-island structures, namely main clauses (16b) and embedded *that*-clauses (16c) because these structures do not involve a scope island for which the denotation of the d-linked *wh*-phrase is crucial for its interpretation. They argued that these results support the semantic account of d-linking effect.

Goodall (2015) and Hofmeister and Sag (2010) claimed the d-linking effect is caused by the complexity of d-linked *wh*-phrase, while Alexopoulou and Keller (2013) argued this effect is caused by the d-linked *wh*-phrase's denotation of discrete individuals as claimed by the semantic account. The source of d-linking effect is still a controversial issue, and this study further investigates the issue by testing the predictions of the complexity account and semantic account of the d-linking effect.

The Present Study

Unlike previous studies (e.g., Alexopoulou & Keller, 2013; Goodall, 2015; Hofmeister & Sag, 2010) that tested only English native speakers to examine island sensitivity and the d-linking effect on *wh*-extractions, this study also tests L2 learners, a population that is particularly interesting to examine from this perspective, to shed light on whether island sensitivity and d-linking effect are similar in the two populations.

Research Questions

The primary goal of this study is to examine whether island sensitivity and the d-linking effect on *wh*-extractions are similar in nature in L2 learners and native speakers. The first step is to examine whether Najdi Arabic learners of English show sensitivity to island constraints on *wh*-movement in English. If Najdi Arabic learners, like native speakers, show sensitivity to islands, this prompts the second question of whether they are more sensitive to strong islands (universal constraints) than to weak islands (language-specific constraints) as predicted by Belikova and White (2009). A third question can also be raised of whether this island sensitivity exhibited by natives and learners is weakened by d-linking effect. If so, this raises the fourth question of whether this d-linking effect is caused by the complexity of the d-linked *wh*-phrase as claimed by the complexity account or caused by the d-linked *wh*-phrase's denotation of discrete individuals as claimed by the semantic account.

Method

Participants

Thirty-one Najdi Arabic learners of English voluntarily participated in the study. The Arabic learners (30 males, mean age = 27.4) started learning English as adults in public schools. All learners completed the Michigan Listening Comprehension Test to assess their English proficiency. The test consisted of 45 listening comprehension questions that targeted various grammatical constructions. The learners' scores ranged from 37 to 44 out of 45 possible correct answers (*M* = 40.05, *SD* = 2.31). They were all tested at Imam University, Riyadh, Saudi Arabia. Twenty-seven monolingual native speakers of English (13 females, 14 males; mean age = 40.3) also participated in the study. Twenty-four of them were from the United States and were tested at the University of Kansas, USA, and three participants were from the United Kingdom and were tested at Imam University. Each participant was paid $15 for participating.

Materials

The stimuli in this study were designed to test the effects of two island types: *wh*-islands (weak islands) and RC islands (strong islands). To test each of the two island types, the *wh*-extraction site and the *wh*-phrase type were manipulated in four conditions as in (17).

(17) *WH*-ISLAND

a. ***What** does he wonder why she might hate ___? ISLAND/BARE
b. ***Which movie** does he wonder why she might hate ___? ISLAND/D-LINKED
c. **What** does he think that she might hate ___? NON-ISLAND/BARE
d. **Which movie** does he think that she might hate ___? NON-ISLAND/D-LINKED

The *wh*-extraction is either from an island structure, as in (17a) and (17b), or from a non-island structure, as in (17c) and (17d). The *wh*-phrase is either a bare *wh*-phrase (*e.g., what*), as in (17a) and (17c), or a d-linked *wh*-phrase (*e.g., which movie*), as in (17b) and (17d). The first two conditions are ungrammatical because of *wh*-extraction from an island, while the last two conditions are grammatical because of *wh*-extraction from a non-island structure and they serve as controls. An example of one set to test the effects of RC islands is shown in (18)[8].

(18) RC ISLAND

a. ***What** did the author who wrote ___win the prize? ISLAND/BARE
b. ***Which article** did the author who wrote ___win the prize? ISLAND/D-LINKED
c. **What** did the author who wrote the article win ___? NON-ISLAND/BARE
d. **Which prize** did the author who wrote the article win ___? NON-ISLAND/D-LINKED

To test *wh*-islands, I used 16 sets of sentences. They included four sets with the *wh*-word *why*, four sets with the *wh*-word "how," four sets with the *wh*-word "where" and four sets with the *wh*-word "when" heading the subordinate clause. To test RC islands, I also used 16 sets of sentences: eight sets with the head of the RC in subject position (four sets with the relative pronoun "who," four sets using "that") and eight sets with the head of the RC in object position (four sets with the relative pronoun "who," four sets using "that").

The sentences from the 32 sets were distributed among four lists using a Latin square design, such that every participant was presented with only one sentence from every set. Each list had 32 sentences that included four sentences for each of the four conditions in *wh*-

[8]The experimental sentences were created by the author, while the fillers were taken from Hawkins & Chan (1997) with some modification.

islands and RC islands. Because all experimental sentences were *wh*-questions, 32 declarative filler sentences were added to each list. Thus, the total number of sentences in each list was 64, including 32 experimental sentences (half grammatical, half ungrammatical) and 32 filler sentences (half grammatical, half ungrammatical). The sentences in each list were presented in four blocks. Each block included eight experimental sentences (four grammatical, four ungrammatical) and eight filler sentences (four grammatical, four ungrammatical). The sentences were randomized in each block. All experimental materials are in Appendix A.

Acceptability Judgment Task

I conducted an acceptability judgment task (AJT), using the experimental control software Paradigm (Tagliaferri, 2005). In each experimental trial, a sentence appeared on the computer screen. The participant then judged, with no time limits, whether the sentence sounded natural or unnatural in English, using a 7-point rating scale displayed underneath the sentence. The rating scale ranged from *totally unnatural* to *perfectly natural*. The participants could choose *I do not know* if they could not make a judgment. The test began with six practice trials to familiarize participants with the task.

Procedure

Native speakers and Najdi learners were tested individually, using a computer. They signed a consent form and completed a background questionnaire. Before Najdi learners took the AJT, they were asked to complete the Michigan Listening Comprehension Test to assess their English proficiency.

Predictions

Sensitivity to island constraints on wh-movement

As shown in the literature review, *wh*-questions in Najdi Arabic can be formed via *wh*-movement, which is sensitive to islands, as is the case in English. This suggests that Najdi Arabic learners have *wh*-movement and island sensitivity in their L1. Therefore, Najdi Arabic learners, like English native speakers, are predicted to make a distinction between ungrammatical and grammatical *wh*-extractions, rating ungrammatical *wh*-extractions from islands lower than grammatical *wh*-extractions from non-islands.

Belikova and White's (2009) Proposal

Belikova and White (2009) claimed that L2 learners, like native speakers, are expected to be more sensitive to strong (universal constraints) than to weak islands (language-specific constraints) if they have access to UG. If this claim is right, Najdi learners will rate *wh*-extractions from RC islands (strong islands) lower than *wh*-extractions from *wh*-islands (weak islands).

D-Linking Effect and Its Source

Much of the literature on d-linking (e.g., Phillips, 2013; Szabolcsi, 2006) claims that d-linking has a greater effect on *wh*-extractions from weak islands than on *wh*-extractions from strong islands. If correct, native speakers and learners will exhibit a greater d-linking effect on *wh*-extractions from *wh*-islands (weak islands) than on *wh*-extractions from RC islands (strong islands).

As for the source of d-linking effect, the complexity account argues the d-linking effect is caused by the semantic and structural complexity of the d-linked *wh*-phrase. This account claims that d-linked *wh*-phrases, which are complex, are easy to retrieve from working memory at the gap site and this ease of processing leads to an increase in acceptability regardless of whether the *wh*-extraction is from an island or non-island

structure. If correct, native speakers and learners will show an increase in acceptability of d-linked *wh*-extractions from both island and non-island structures.

However, the semantic account that is relevant only for weak islands argues the d-linking effect is caused by semantic factors[9]. This account claims that d-linked *wh*-phrases increase acceptability of *wh*-extractions from weak islands because they denote discrete individuals that can participate in the semantic Boolean operations necessary for the interpretation of weak islands. If correct, native speakers and learners will show an increase in acceptability of d-linked *wh*-extractions from *wh*-islands (weak islands) but not of d-linked *wh*-extractions from RC islands (strong islands) or non-islands because the denotation of the d-linked *wh*-phrase is not crucial for the interpretation of strong island and non-island structures.

Results

In this section, I first present the results of whether native speakers and learners distinguished ungrammatical from grammatical *wh*-extractions. Then I present the results of whether native speakers and leaners are more sensitive to strong than to weak islands and the results of the d-linking effect on *wh*-extractions from islands. Finally, I present the results of the d-linking effect on *wh*-extractions from non-islands. Before analysis, each participant's acceptability ratings were converted into *z* scores to eliminate the possibility that participants may vary in their use of the range of the 7-point rating scale used in the AJT.

Ungrammatical vs. Grammatical Wh-extractions

To examine whether native speakers and learners distinguished ungrammatical from grammatical *wh*-extractions and whether the distinction is affected by *wh*-phrase type and island type, I conducted a mixed four-way repeated measures ANOVA for acceptability ratings with Grammaticality (grammatical vs. ungrammatical *wh*-extraction), *Wh*-Phrase Type (bare vs. d-linked) and Island Type (*wh*-island vs. RC island) as within-subjects factors and Group (native speakers vs. learners) as the between-subjects factor. Figure 1 summarizes the results for native speakers; Figure 2 summarizes the results for learners.

ANOVA results revealed a main effect of Grammaticality [$F(1,56) = 497.860$, $p = .000$], indicating that ungrammatical *wh*-extractions were distinguished from grammatical ones. The analysis did not reveal a main effect of Group [$F(1,56) = .124$, $p = .726$] but revealed an interaction between Grammaticality and Group [$F(1,56) = 17.379$, $p = .000$], indicating that native speakers were better than learners in distinguishing ungrammatical *wh*-extractions ($M = -0.98$) from grammatical ones ($M = 0.58$) overall. However, follow-up statistical analysis showed that learners also distinguished ungrammatical *wh*-extractions ($M = -0.75$) from grammatical ones ($M = 0.32$) [$t(30) = -12.079$, $p = .000$].

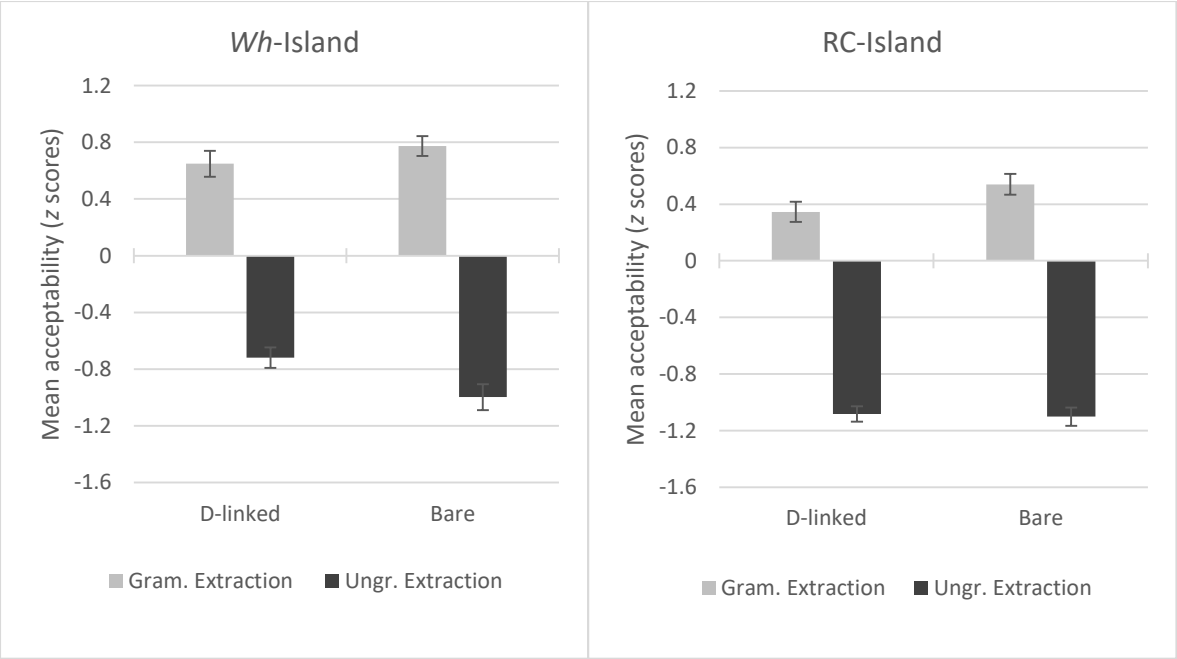
The analysis showed a main effect of *Wh*-Phrase Type [$F(1,56) = 9.067$, $p = .004$] and an interaction between *Wh*-Phrase Type and Group [$F(1,56) = 9.995$, $p = .003$]. There was also an interaction between Grammaticality and *Wh*-Phrase Type [$F(1,56) = 7.716$, $p = .007$] and no three-way interaction with Group [$F(1,56) = 2.251$, $p = .139$]. This indicates that the distinction in grammaticality is more pronounced in bare than in d-linked *wh*-extractions for both native speakers and learners and no difference between the two groups.

[9]The semantic account is relevant for weak islands because it views them as a semantic phenomenon. The semantic account, however, is not relevant for strong islands because they are typically taken to be a syntactic phenomenon, and the semantic denotation of the extracted *wh*-phrase is not crucial for their interpretation.

The analysis also showed a main effect of Island Type [$F(1,56) = 37.011$, $p = .000$] but did not show an interaction between Island Type and Group [$F(1,56) = 0.001$, $p = .974$]. Moreover, there was not an interaction between Grammaticality and Island Type [$F(1,56) = .553$, $p = .460$] and no three-way interaction with Group [$F(1,56) = 1.442$, $p = .235$]. This indicates that the distinction in grammaticality was the same in *wh*-island and RC island sentences for both native speakers and learners, with no difference between the two groups.

Figure 1

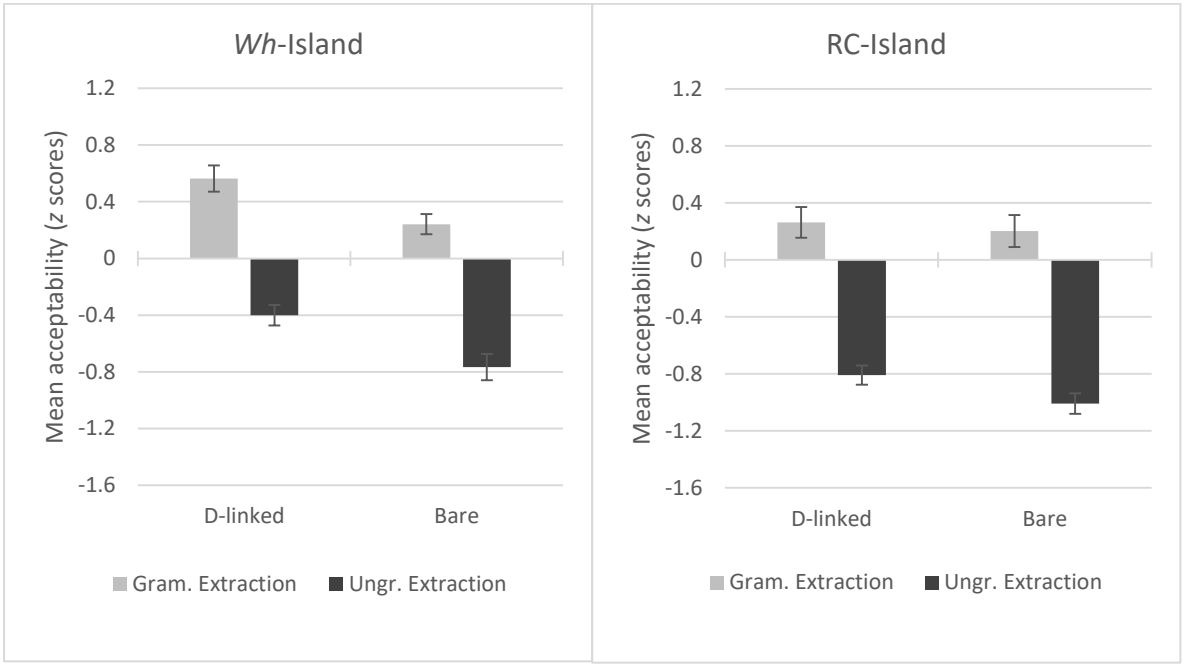
Native Speakers' Mean Acceptability of Experimental Conditions



Note. Error bars indicate standard error.

Figure 2

L2 Learners' Mean Acceptability of Experimental Conditions



Note. Error bars indicate standard error.

There was an interaction between Island Type and *Wh*-Phrase Type [$F(1,56) = 11.772$, $p = .001$], but there was no three-way interaction with Group [$F(1,56) = 1.442$, $p = .235$]. There was no three-way interaction among Grammaticality, Island Type, and *Wh*-Phrase Type [$F(1,56) = .137$, $p = .713$] and no four-way interaction with Group [$F(1,56) = 1.186$, $p = .281$]. This indicates that the distinction in grammaticality for bare and d-linked *wh*-extractions was the same in *wh*-island and RC island sentences for both native speakers and learners, with no difference between the two groups.

Ungrammatical Wh-extractions From Islands

In this section, I present the results of whether native speakers and learners are more sensitive to strong than to weak islands and the results of the d-linking effect on *wh*-extractions from islands. I conducted a mixed three-way repeated measures ANOVA for acceptability ratings of *wh*-extractions from islands with *Wh*-Phrase Type (bare vs. d-linked) and Island Type (*wh*-island vs. RC island) as within-subjects factors and Group (native speakers vs. learners) as the between-subjects factor.

The results of ANOVA revealed a main effect of Island Type [$F(1,56) = 30.754$, $p = .000$] but no interaction between Island Type and Group [$F(1,56) = .859$, $p = .358$]. This indicates that both native speakers and learners rated *wh*-extractions from RC islands ($M = -1.00$) lower than *wh*-extractions from *wh*-islands ($M = -0.72$) and no difference between the two groups, being more sensitive to strong islands (universal constraints) than to weak islands (language-specific constraints). To examine whether native speakers and learners were more sensitive to strong than to weak islands for both d-linked and bare *wh*-phrases, I conducted pairwise comparisons between the *wh*-island/d-linked condition and the RC-island/d-linked condition (Natives: $t(26) = 4.555$, $p = .000$; Learners: $t(30) = 3.257$, $p = .003$) and between the *wh*-island/bare condition and the RC-island/bare condition (Natives: $t(26) = 1.822$, $p = .080$; Learners: $t(30) = 3.148$, $p = .004$). The pairwise comparisons indicate that learners

were more sensitive to strong than to weak islands for both d-linked and bare *wh*-phrases. Native speakers were also more sensitive to strong than to weak islands for d-linked *wh*-phrases. In the case of bare *wh*-phrases, they tended to show a similar pattern of results and this was marginally significant.

There was a main effect of Group [$F(1,56) = 13.136$, $p = .001$], which indicates that native speakers ($M = -0.98$) rated *wh*-extractions from islands lower than learners ($M = -0.75$). There was also a main effect of *Wh*-Phrase Type [$F(1,56) = 24.011$, $p = .000$] but no interaction between *Wh*-Phrase Type and Group [$F(1,56) = 2.337$, $p = .132$]. This indicates that both native speakers and learners exhibited a d-linking effect on *wh*-extractions from islands and no difference between the two groups, rating d-linked *wh*-extractions ($M = -0.75$) higher than bare *wh*-extractions ($M = -0.97$).

Crucially, there was an interaction between *Wh*-Phrase Type and Island Type [$F(1,56) = 6.974$, $p = .011$] but no three-way interaction with Group [$F(1,56) = .331$, $p = .567$]. This suggests that the d-linking effect is greater on *wh*-extractions from *wh*-islands than on *wh*-extractions from RC islands for both native speakers and learners and no difference between the two groups.

Grammatical Wh-extractions From Non-Islands

In this section, I present the results of the d-linking effect on *wh*-extractions from non-islands. Because native speakers patterned differently from learners with respect to the d-linking effect on *wh*-extractions from non-islands as shown in Figure 1 and Figure 2, I conducted a separate analysis for each group to examine whether d-linking increases acceptability of *wh*-extractions from non-islands and whether this is affected by Structure Type. For native speakers, I conducted a two-way repeated measures ANOVA for ratings of *wh*-extractions from non-islands with *Wh*-Phrase Type (bare vs. d-linked) and Structure Type (*that*-clause vs. main RC) as within-subjects factors.

The results of ANOVA revealed a main effect of *Wh*-Phrase Type [$F(1,26) = 7.919$, $p = .009$], which indicates that native speakers did not exhibit a d-linking effect on *wh*-extractions from non-islands, rating bare *wh*-extractions ($M = 0.65$) higher than d-linked *wh*-extractions ($M = 0.49$). The analysis also showed a main effect of Structure Type [$F(1,26) = 8.032$, $p = .009$], which indicates that native speakers rated *wh*-extractions from *that*-clauses ($M = 0.71$) higher than *wh*-extractions from main RCs ($M = 0.44$). There was no interaction between *Wh*-Phrase Type and Structure Type [$F(1,26) = .451$, $p = .508$], indicating that d-linking effect is the same in *wh*-extractions from *that*-clauses and *wh*-extractions from main RCs.

For learners, the results of ANOVA revealed a marginally significant main effect of *Wh*-Phrase Type [$F(1,26) = 3.610$, $p = .067$], which indicates that learners, unlike native speakers, tended to exhibit a d-linking effect on *wh*-extractions from non-islands, rating d-linked *wh*-extractions ($M = 0.41$) higher than bare *wh*-extractions ($M = 0.22$). The analysis also showed a marginally main effect of Structure Type [$F(1,26) = 4.037$, $p = .054$], which indicates that learners tended to rate *wh*-extractions from *that*-clauses ($M = 0.40$) higher than *wh*-extractions from main RCs ($M = 0.23$). There was also a marginally significant interaction between *Wh*-Phrase Type and Structure Type [$F(1,26) = 3.465$, $p = .073$], which suggests that the d-linking effect was greater on *wh*-extractions from *that*-clauses than on *wh*-extractions from main RCs.

Discussion

The first question tested in this study is whether Najdi learners can show sensitivity to island constraints on English *wh*-movement. This study showed that Najdi learners, like English natives, correctly made a distinction between ungrammatical and grammatical *wh*-extractions, and this distinction in grammaticality was more pronounced with bare than with d-linked *wh*-extractions as shown in Figures 1 and 2. This suggests that *wh*-dependencies in both L1 and L2 grammars are similarly constrained by syntax. To conclude, then, and in answer to the first question of this study, Najdi learners did, in fact, show sensitivity to island constraints on *wh*-movement, just as English natives did.

The second question tested in this study is whether Najdi learners are more sensitive to strong (universal constraints) than to weak islands (language-specific constraints), as predicted by Belikova and White (2009). The results showed that Najdi learners, like English natives, rated *wh*-extractions from RC islands (strong islands) lower than *wh*-extractions from *wh*-islands (weak islands), being more sensitive to strong than to weak islands, as shown in Figures 1 and 2. This was reflected in the main effect of island type in the statistical analysis run on acceptability ratings of *wh*-extractions from islands. This pattern of results was more pronounced with d-linked *wh*-extractions than with bare *wh*-extractions. These results are consistent with Belikova and White (2009), which argued that L2 learners are expected to be more sensitive to strong than to weak islands if they have access to UG.

Although previous studies that tested L2 sensitivity to island constraints did not agree on the issue of whether L2 learners have access to UG, the results of many studies along with the results of this study are consistent under Belikova and White (2009). Both Najdi learners in this study and Italian, Indonesian and Chinese learners in Martohardjono (1993) rated *wh*-extractions from RC islands (strong islands) lower than *wh*-extractions from *wh*-islands (i.e., weak islands). Although Johnson and Newport (1991) and Schachter (1990) argued that UG is inaccessible for L2 learners, learners in these studies were similar to the learners in the current study in that they were more sensitive to strong than to weak islands. To conclude, then, and in answer to the second question of this study, Najdi learners were more sensitive to strong than to weak islands, suggesting that Belikova and White's (2009) proposal is on the right track.

The third question in this study tested whether d-linking weakens island effects and increases the acceptability of *wh*-extractions from islands. Based on previous literature on d-linking (e.g., Szabolcsi, 2006), I predicted that d-linking would have a greater effect on *wh*-extractions from weak islands than on *wh*-extractions from strong islands. As predicted, both natives and learners showed a d-linking effect that was greater on *wh*-extractions from *wh*-islands (weak islands) than on *wh*-extractions from RC islands (strong islands) as shown in Figures 1 and 2. This was reflected in the interaction between *Wh*-Phrase Type and Island Type in the statistical analysis run on acceptability ratings of *wh*-extractions from islands.

Unlike previous studies (e.g., Alexopoulou & Keller, 2013; Goodall, 2015; Hofmeister & Sag, 2010) which tested only weak islands to examine the d-linking effect on *wh*-extractions from islands, the present study tested also strong islands (RC islands) and showed that d-linking did not uniformly affect island types, having a noticeable effect on weak islands (*wh*-islands) and a less obvious effect on strong islands (RC islands) as noted by Phillips (2013).

However, it should be noted that although d-linking increased the acceptability of *wh*-extractions from *wh*-islands, the acceptability of these *wh*-extractions remained less acceptable than grammatical *wh*-extractions. That is, d-linking could not completely

eliminate island effects and restore the questions with *wh*-extractions from islands to full acceptability. Interestingly, similar results were found in Alexopoulou and Keller (2013), Goodall (2015), and Sprouse et al. (2016). To conclude, then, and in answer to the third question of this study, d-linking weakened island effects, and its effect was greater on *wh*-extractions from *wh*-islands (weak islands) than on *wh*-extractions from RC islands (strong islands).

The fourth study question explored whether this d-linking effect on *wh*-extractions from *wh*-islands is caused by the complexity of the d-linked *wh*-phrase (e.g., Hofmeister & Sag, 2010) or by the d-linked *wh*-phrase's denotation of discrete individuals (Szabolcsi & Zwarts, 1993, 1997). The complexity account claims that d-linked *wh*-phrases, which are semantically and structurally complex, are easy to retrieve from working memory at the gap site, and this ease of processing leads to an increase in acceptability. If this claim is correct, then I would expect an increase in acceptability regardless of whether the *wh*-extraction is from an island or non-island structure. However, the semantic account, which is relevant only for weak islands, claims that d-linked *wh*-phrases increase the acceptability of *wh*-extractions from weak islands because they denote discrete individuals that can participate in the semantic operations necessary for the interpretation of weak islands. If this claim is correct, then I would expect an increase in acceptability of *wh*-extractions from *wh*-islands (weak islands). However, I would not expect an increase in acceptability of *wh*-extractions from RC islands (strong islands) or non-island structures because the denotation of the extracted *wh*-phrase does not matter for the interpretation of RC islands and non-island structures.

Consistent with the predictions of the semantic account, native speakers' results showed that d-linked *wh*-phrases increased the acceptability of *wh*-extractions from *wh*-islands but not of *wh*-extractions from RC islands or non-island structures (main RCs and *that*-clauses). These results support the semantic account of d-linking effect. Both Alexopoulou and Keller (2013) and Sprouse et al. (2016) found similar results, showing a d-linking effect on *wh*-extractions from weak islands (*whether* islands, complex NP islands) but no d-linking effect on *wh*-extractions from strong islands (subject and adjunct islands) or non-island structures (main RCs and *that*-clauses).

However, Goodall (2015) found a d-linking effect not only on *wh*-extractions from islands, but also on *wh*-extractions from non-island structures (*that*-clauses). Goodall (2015) criticized the results of Alexopoulou and Keller (2013) that showed no d-linking effect on *wh*-extractions from non-island structures, arguing that Alexopoulou and Keller did not detect a d-linking effect because their experiment could not distinguish among sentences at the very high end of the acceptability scale. Specifically, Goodall (2015) claimed that Alexopoulou and Keller's (2013) results suggest the presence of a ceiling effect because they could not show a difference even in acceptability between sentences with short *wh*-dependencies and sentences with long *wh*-dependencies, for which many studies found a very clear difference in acceptability.

In this study, however, the non-effect of d-linking on *wh*-extractions from non-islands cannot be attributable to a ceiling effect in the scale. Interestingly, two conditions of grammatical filler sentences were rated higher by native speakers than the four experimental conditions of *wh*-extractions from non-island structures. These fillers were declarative sentences including a RC with a gap in subject position (M =1.15) as in (19), or with a gap in object position (M = 1.03) as in (20).

(19) The young man who ___was driving fast had an accident.
(20) The patient who I visited ___ yesterday was very sick.

If there were indeed a d-linking effect on *wh*-extractions from non-island structures, no ceiling effect in the current experiment would affect the ability to detect it. The criticisms of Goodall (2015) against Alexopoulou and Keller (2013) cannot be raised against this study. However, it is not clear why Goodall (2015) found a d-linking effect on *wh*-extractions from *that*-clause structure as in (21) while this study that tested the same structure as in (22) did not[10]. It is noteworthy that there is no difference in terms of structure between Goodall's stimuli and the stimuli of this study, and neither was preceded by a context. Goodall observed a d-linking effect on *wh*-extractions from non-islands probably because he used a different type of d-linked *wh*-phrase (*which of the* N).

(21) **What / which of the cars** do you believe that he might buy___?
(22) **What / which movie** does he think that she might hate ___?

In the case of Najdi learners, d-linked *wh*-phrases increased the acceptability of *wh*-extractions from *wh*-islands and RC islands. They also increased the acceptability of *wh*-extractions from one non-island structure (i.e., *that*-clause structure) but not the acceptability of *wh*-extractions from the other non-island structure (i.e., main RC structure). Except for *wh*-extractions from main RC structure, these results support the complexity account, which claims that d-linking increases not only the acceptability of *wh*-extractions from islands but also the acceptability of *wh*-extractions from non-islands.

However, I believe this pattern of results is not driven by the complexity of d-linked *wh*-phrases because Najdi learners showed two unusual findings related to d-linking. The first is the increase in acceptability of d-linked *wh*-extractions from RC islands (strong islands). If complexity of d-linked *wh*-phrases led to an increase in acceptability of these *wh*-extractions, why didn't native speakers show an increase in acceptability of these *wh*-extractions? Interestingly, native speakers rated both bare and d-linked *wh*-extractions from RC islands almost the same, suggesting no d-linking effect on *wh*-extractions from strong islands as shown by Sprouse et al. (2016), who also found no d-linking effect on *wh*-extractions from subject and adjunct clause islands (strong islands).

I believe learners exhibited this pattern of results because some were affected by the semantic cues of d-linked *wh*-phrases that misled them when they were processing *wh*-questions with *wh*-extractions from RC islands. Specifically, the semantic cues of d-linked *wh*-phrases initially misled learners by making them tend to incorrectly associate the *wh*-phrase (e.g., *which article*), which was ungrammatically moved from the RC island, with the verb (e.g., *wrote*) as its argument because of the semantic plausibility match between the *wh*-phrase and the verb as shown in (23).

(23) ***Which article** did the author who wrote ____win the prize?

However, after learners unconsciously felt that it was not grammatically possible to associate the *wh*-phrase ("which article"), which was moved from the island, with the verb ("wrote"), they realized that they needed to revise their initial analysis of the structure and consequently

[10]The example in (21) is from Goodall (2015), p. 4.

rejected the sentence. Thus, the increase in acceptability of d-linked *wh*-extractions from RC islands is more likely caused by learners' initial misanalysis of the sentence structure[11].

The second unusual finding shown by learners is that d-linking increased the acceptability of *wh*-extractions from *that*-clause structure but not the acceptability of *wh*-extractions from the main RC structure. Again, I believe these results are driven by the effect of semantic cues of d-linked *wh*-phrases. D-linking increased acceptability of *wh*-extractions from *that*-clause structure because d-linked *wh*-phrases (e.g., "which movie"), as opposed to bare *wh*-phrases (e.g., "what"), are semantically more plausible arguments of the verb (e.g., "hate") in the embedded *that*-clause as shown in (24) and (25).

(24) **What** does he think that she might hate ___?
(25) **Which movie** does he think that she might hate___?

For *wh*-extractions from the main RC structure, I believe the semantic plausibility match between the extracted *wh*-phrase and the main clause verb did not help increase acceptability due to processing difficulty. Processing of *wh*-extractions from the main RC structure is more difficult than processing of *wh*-extractions from *that*-clause structure (e.g., Kluender & Kutas, 1993).

To answer the fourth question in this study, my conclusion is based on the results of native speakers rather than the results of learners who could have been misled by the semantic cues of d-linked *wh*-phrases at their initial processing of *wh*-dependencies. To conclude, then, and in answer to the fourth question, the d-linking effect on *wh*-extractions from *wh*-islands is more likely caused by the d-linked *wh*-phrase's denotation of discrete individuals that can facilitate the semantic operations necessary for the interpretation of weak islands, as claimed by the semantic account of d-linking effect. However, one must be cautious about generalizing the results of the d-linking effect in this study because only one type of d-linked *wh*-phrase (*which* N) was tested, and other types of d-linked *wh*-phrases (*e.g., what* N or *which of the* N) could also be tested.

Conclusion

This study makes two important contributions to the L2 literature on island sensitivity and d-linking effect on *wh*-extractions. First, this study provides further evidence that island sensitivity is similar in nature in L2 learners and native speakers. Najdi learners patterned similarly to English natives in terms of the strength of their sensitivity to strong versus weak islands, suggesting that Belikova and White's 2009 proposal is on the right track. Second, this study provides evidence that the d-linking effect on *wh*-extractions from islands is also similar in nature in L2 learners and native speakers. Consistent with previous research on d-linking, both natives and learners exhibited a greater d-linking effect on *wh*-extractions from *wh*-islands (weak islands) than on *wh*-extractions from RC islands (strong islands), and this d-linking effect is more likely caused by the d-linked *wh*-phrase's denotation of discrete individuals as claimed by the semantic account of the d-linking effect (Szabolcsi & Zwarts, 1993, 1997).

[11]Although the semantic information of d-linked *wh*-phrases led to an increase in acceptability of *wh*-extractions from RC islands, these *wh*-extractions were still rated very low ($M = -0.80$) compared to grammatical control *wh*-extractions ($M = 0.26$). Interestingly, no one could argue that learners' distinction between grammatical and ungrammatical *wh*-extractions in this study is driven by semantic rather than syntactic cues because reliance on semantic cues cannot help learners to correctly reject ungrammatical *wh*-extractions from islands, as explained in example (23).

Bio

Saad M. Aldosari is an Assistant Professor of Linguistics at the College of Languages and Translation, Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh, Saudi Arabia. He completed his MA and PhD in Linguistics at the University of Kansas, USA. His research examines the acquisition and processing of syntax by second language learners, focusing on the cognitive and linguistic factors that impact development and ultimate attainment.

References

Albaty, Y. A. (2013). Wh-in-situ in Najdi Arabic. *Workings Papers of the Linguistics Circle*, *23*(1), 1–14.

Alexopoulou, T., & Keller, F. (2013). What vs. who and which: Kind-denoting fillers and the complexity of *whether*-islands. In J. Sprouse & N. Hornstein (Eds.), *Experimental syntax and island effects* (pp. 310–340). Cambridge University Press.

Alotaibi, M., & Borsley R. D. (2013). Gaps and resumptive pronouns in Modern Standard Arabic. In S. Muller (Ed.), *Proceedings of the 20th international conference on head-driven phase structure grammar* (pp. 6–23). CSLI Publications.

Aoun, J., Benmamoun, E., & Choueiri, L. (2010). *The syntax of Arabic*. Cambridge University Press.

Belikova, A., & White, L. (2009). Evidence for the fundamental difference hypothesis or not? Island constraints revisited. *Studies in Second Language Acquisition*, *31*(2), 199–223. https://doi.org/10.1017/S0272263109090287

Chomsky, N. (1973). Conditions on transformations. In S. R. Anderson & P. Kiparsky (Eds.), *A festschrift for Morris Halle* (pp. 232–286). Holt, Rinehart & Winston.

Chomsky, N. (1981). Principles and parameters in syntactic theory. In N. Hornstein & D. Lightfoot (Eds.), *Explanation in linguistics* (pp. 32–75). Longman.

Chomsky, N. (1986). *Barriers*. MIT Press.

Goodall, G. (2015). The d-linking effect on extraction from islands and non-islands. *Frontiers in Psychology*, *5*, 1–11. https://doi.org/10.3389/fpsyg.2014.01493

Hawkins, R., & Chan, C. Y.-H. (1997). The partial availability of Universal Grammar in second language acquisition: The "failed functional features hypothesis." *Second Language Research*, *13*(3), 187–226. https://doi.org/10.1191/026765897671476153

Hofmeister, P., & Sag, I. A. (2010). Cognitive constraints and island effects. *Language*, *86*(2), 366–415. https://doi.org/10.1353/lan.0.0223

Huang, C.-T. J. (1982). *Logical relations in Chinese and the theory of grammar* [Doctoral dissertation, Massachusetts Institute of Technology]. Dspace@MIT. http://dspace.mit.edu/handle/1721.1/15215

Johnson, J., & Newport, E. (1991). Critical period effects on universal properties of language: The status of subjacency in the acquisition of a second language. *Cognition*, *39*(3), 215–258. https://doi.org/10.1016/0010-0277(91)90054-8

Kluender, R., & Kutas, M. (1993). Subjacency as a processing phenomenon. *Language and Cognitive Processes*, *8*(4), 573–633. https://doi.org/10.1080/01690969308407588

Li, X. (1998). Adult L2 accessibility to UG: An issue revisited. In S. Flynn, G. Martohardjono, & W. A. O'Neil (Eds.), *The generative study of second language* acquisition (pp. 89–110). Erlbaum.

Martohardjono, G. (1993). *Wh-movement in the acquisition of a second language: A crosslinguistic study of three languages with and without overt movement* (Publication No. 9325314) [Doctoral dissertation, Cornell University]. ProQuest.

Pesetsky, D. (1987). Wh-in-situ: Movement and unselective binding. In E. J. Reuland & A. G. B. ter Meulen (Eds.), *The representation of (in)definiteness* (pp. 98–130). MIT Press.

Phillips, C. (2013). On the nature of island constraints: I: Language processing and reductionist accounts. In J. Sprouse & N. Hornstein (Eds.), *Experimental syntax and island effects* (pp. 64–108). Cambridge University Press.

Ross, J. R. (1967). *Constraints on variables in syntax* [Doctoral dissertation, Massachusetts Institute of Technology]. Dspace@MIT. https://dspace.mit.edu/bitstream/handle/1721.1/15166

Schachter, J. (1990). On the issue of completeness in second language acquisition. *Second Language Research*, *6*(2), 93–124. https://doi.org/10.1177/026765839000600201

Schwartz, B. D., & Sprouse, R. A. (1996). L2 cognitive states and the full transfer/full access model. *Second Language Research*, *12*(1), 40–72. https://doi.org/10.1177/026765839601200103

Shlonsky, U. (1992). Resumptive pronouns as a last resort. *Linguistic Inquiry*, *23*(3), 443–468. https://www.jstor.org/stable/4178780

Shlonsky, U. (2002). Constituent questions in Palestinian Arabic. In J. Ouhalla & U. Shlonsky (Eds.), *Themes in Arabic and Hebrew syntax* (pp. 137–159). Springer. https://doi.org/10.1007/978-94-010-0351-3_5

Sprouse, J., Caponigro, I., Greco, C., & Cecchetto, C. (2016). Experimental syntax and the variation of island effects in English and Italian. *Natural Language & Linguistic Theory*, *34*(1), 307–344. https://doi.org/10.1007/s11049-015-9286-8

Sprouse, J., Wagers, M., & Phillips, C. (2012). A test of the relation between working-memory capacity and syntactic island effects. *Language*, *88*(1), 82–123. https://doi.org/10.1353/lan.2012.0004

Szabolcsi, A. (2006). Strong vs. weak islands. In M. Everaert & H. C. van Riemsdijk (Eds.), *The Wiley Blackwell companion to syntax* (pp. 479–532). Blackwell.

Szabolcsi, A., & Zwarts, F. (1993). Weak islands and an algebraic semantics of scope taking. *Natural Language Semantics*, 1, 235–284. https://doi.org/10.1007/BF00263545

Szabolcsi, A., & Zwarts, F. (1997). Weak islands and an algebraic semantics of scope taking. In A. Szabolcsi (Ed.), *Ways of scope taking* (pp. 217–262). Springer.

Tagliaferri, B. (2005). Paradigm (Version 1.0) [Computer software]. Perception Research Systems. http://www.paradigmexperiments.com/

Tsimpli, I. M., & Dimitrakopoulou, M. (2007). The interpretability hypothesis: Evidence from wh-interrogatives in second language acquisition. *Second Language Research*, *23*(2), 215–242. https://doi.org/10.1177/0267658307076546

Tucker, M., Idrissi, A., Sprouse, J., & Almeida, D. (2019). Resumption ameliorates different islands differently: Acceptability data from Modern Standard Arabic. In A. Khalfaoui & M. Tucker (Eds.) *Perspectives on Arabic Linguistics XXX: Papers from the annual symposia on Arabic Linguistics* (pp. 159–193). John Benjamins.

Appendix A

Experimental Sentences

***WH*-ISLANDS**

***Wh*-islands, head *wh*-word (why)**

1.
   a. What / Which package does she wonder why he might bring?
   b. What / Which package does she think that he might bring?
2.
   a. What / Which movie does he wonder why she might hate?
   b. What / Which movie does he think that she might hate?
3.
   a. What / Which passport does she wonder why he would take?
   b. What / Which passport does she think that he would take?
4.
   a. What / Which watch does he wonder why she might like?
   b. What / Which watch does he think that she might like?

***Wh*-islands, head *wh*-word (how)**

5.
   a. What / Which pie does he wonder how she will make?
   b. What / Which pie does he think that she will make?
6.
   a. What / Which book does she wonder how he will finish?
   b. What / Which book does she think that he will finish?
7.
   a. What / Which necklace does she wonder how he could steal?
   b. What / Which necklace does she think that he could steal?
8.
   a. What / Which car does he wonder how she could borrow?
   b. What / Which car does he think that she could borrow?

***Wh*-islands, head *wh*-word (where)**

9.
   a. What / Which bicycle does she wonder where he could ride?
   b. What / Which bicycle does she think that he could ride?
10.
   a. What / Which map does she wonder where he might find?
   b. What / Which map does she think that he might find?
11.
   a. What / Which car does she wonder where he will fix?
   b. What / Which car does she think that he will fix?
12.
   a. What / Which movie does he wonder where she will watch?
   b. What / Which movie does he think that she will watch?

***Wh*-islands, head *wh*-word (when)**

13.
   a. What / Which television does she wonder when he could sell?
   b. What / Which television does she think that he could sell?
14.
   a. What / Which vegetables does he wonder when she should cook?
   b. What / Which vegetables does he think that she should cook?

15.
   a. What / Which exam does she wonder when he will take?
   b. What / Which exam does she think that he will take?
16.
   a. What / Which house does she wonder when he will buy?
   b. What / Which house does she think that he will buy?

Relative CLAUSE (RC) ISLANDS

RC, head (who) in subject position

1.
   a. What / Which necklace did the person who found receive a reward?
   b. What / Which reward did the person who found the necklace receive?
2.
   a. What / Which course did the student who took pass the exam?
   b. What / Which exam did the student who took the course pass?
3.
   a. What / Which article did the author who wrote win the prize?
   b. What / Which prize did the author who wrote the article win?
4.
   a. What / Which cake did the chef who baked wash the bowl?
   b. What / Which bowl did the chef who baked the cake wash?

RC, head (that) in subject position

5.
   a. What / Which mouse did the cat that chased break the glass?
   b. What / Which glass did the cat that chased the mouse break?
6.
   a. What / Which cart did the goat that pulled eat the fruit?
   b. What / Which fruit did the goat that pulled the cart eat?
7.
   a. What / Which apple did the horse that took jump the fence?
   b. What / Which fence did the horse that took the apple jump?
8.
   a. What / Which ball did the dog that caught steal the meat?
   b. What / Which meat did the dog that caught the ball steal?

RC, head (who) in object position

9.
   a. What / Which book did she see the author who wrote?
   b. What / Which book did the author whom she saw write?
10.
   a. What / Which truck did she help the man who drove?
   b. What / Which truck did the man whom she helped drive?
11.
   a. What / Which disease did she thank the doctor who cured?
   b. What / Which disease did the doctor whom she thanked cure?
12.
   a. What / Which program did she greet the man who created?
   b. What / Which program did the man whom she greeted create?

RC, head (that) in object position

13.
   a. What / Which rat did he see the cat that caught?
   b. What / Which rat did the cat that he saw catch?

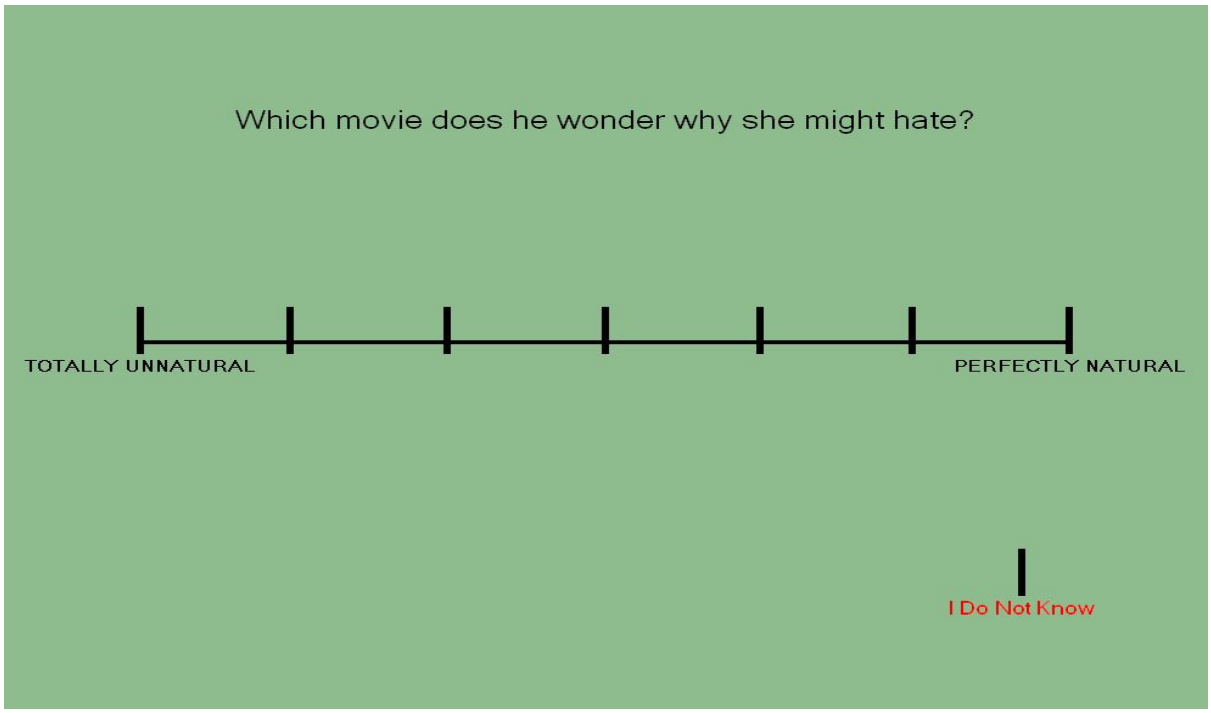
14.
    a. What / Which grass did he see the cow that ate?
    b. What / Which grass did the cow that he saw eat?
15.
    a. What / Which banana did he watch the monkey that threw?
    b. What / Which banana did the monkey that he watched throw?
16.
    a. What / Which race did she ride the horse that won?
    b. What / Which race did the horse that she rode win?

Filler Sentence (adopted from Hawkins and Chan, 1997)

1. The young man who was driving fast had an accident.
2. The nice waiter who always serves us is named George.
3. The thieves who stole my purse disappeared quickly.
4. The woman who studies economics works in a bank.
5. The little girl cried when lost her way yesterday.
6. The children played games when attended lessons.
7. The boy felt sick when took the examination.
8. My sister burnt her fingers when cooked the chicken.
9. The patient who I visited yesterday was very sick.
10. The film that she saw was very interesting.
11. The girl who John likes is studying at the university.
12. The doctor who Mary visited last Friday was really kind.
13. The cat which that I gave the milk to was very skinny.
14. The school which that they are studying English at is very famous.
15. The beautiful vase which that I broke was very expensive.
16. The noisy classmate whom that I hate is very selfish.
17. The friend whom I lent the book to studied very hard.
18. The girl whom he gave a gift to yesterday was delighted.
19. The cats that she brought milk to were happy.
20. The man whom I borrowed money from is very rich.
21. The girl who I always play with her is my cousin.
22. The room they usually work in it is very big.
23. The boy who I always study with him is my friend.
24. The chairs we sat in them were very comfortable.
25. The man whom Peter runs faster than is an athlete.
26. The girl whom we sing better than is in the choir.
27. The classmates whom Sally is smarter than read very slowly.
28. The tree that I am shorter than is falling down.
29. John was stayed in bed until 11:00 because he was very sick.
30. The plane was arrived at the international airport on time yesterday.
31. The sick student was coughed a lot in the classroom yesterday.
32. The little child was cried a lot last night because he was so hungry.

Appendix B

The Rating Scale of the Acceptability Judgment Task



جامعة الملك سعود
King Saud University

Journal of Research in Language & Translation

Issue No. 2 Vol. 1 (2021)

An Analysis of the Inflectional System of Person, Number, and Gender of Verbs in Hijazi Saudi Arabic (HSA)

Maisarah M. Almirabi

Umm Al-Qura University, College of Social Sciences, Department of English, 7456, Unit. 1, Makkah Al-Mukarramah 24372-4204, Kingdom of Saudi Arabia
mmmirabi@uqu.edu.sa

Received: 29/7/2021; Revised: 28/10/2021; Accepted: 1/11/2021

الملخص

تناولت الدراسة التحليل اللغوي للشخص (متكلم، مخاطب، غائب) والعدد (مفرد، مثنى، جمع) والجنس (مذكر، مؤنث) في لهجتي الجزيرة العربية السعودية الحجازية والحجازية القديمة من منظور التجزيء الصوتي الطبقي (autosegmental) وذلك لتوضيح ظاهرة توزيع الضمائر العربية على أجزاء الكلمة الثلاث (البداية والوسط والنهاية) في تلك اللهجتين. شارك في الدراسة أربعة متحدثين اصليين للهجة السعودية الحجازية (سيدتين ورجلين) لينطقوا قائمة من الأفعال قد وفرت لهم لهذا الغرض. وقد تم استخدام الأمثلة في بحث عبدالحميد (1990) وبوتين (2017) لتوفير الأمثلة في الحجازية القديمة.

وجد الباحث اختلاف أفعال الزمن الماضي والافعال المبنية للمجهول في الحجازية القديمة عن نظيراتها في العربية الفصحى الحديثة والسعودية الحجازية. فمن مواطن الاختلاف زيادة الصوتين [j,w] في نهاية الفعل وتشديد الاصوات في مواضع مختلفة من الفعل. ومن السهل على العامة أن يربطون اللهجات بأنها منحدرة من أخرى على أساس وحدة الموقع الجغرافي أو تشابه الاسم على الرغم من عدم علمية ذلك التصور فارتباطا بذلك وجد الباحث عدم صحة ذلك التصور عند مقارنة الحجازية القديمة والعربية الفصحى الحديثة والسعودية الحجازية.

جامعة الملك سعود
King Saud University

Journal of Research in Language & Translation

Issue No. 2 Vol. 1 (2021)

Abstract

This study examines person, number, and gender inflections in the past tense forms of Hijazi-Saudi Arabic (HSA) and Hijazi-Classical Arabic (HCA) verbs. It sheds light on the inflectional rules of forming verbs in HSA, an understudied variety of Arabic, adopting an autosegmental approach which highlights the variety's nonconcatenative nature. Four native speakers of HSA, two females and two males were consulted, in order to provide data. They were given a list of verbs and requested to say the verb versions in HSA. HCA examples follow the morphological rules explained by Abdulhameed (1990) and Putten (2017). The past tense verbs and the passive voice forms in HCA differed from the corresponding forms used in Modern Standard Arabic (MSA) and HSA: for example, the additional approximant consonants [j, w] at the end of the verb, and the gemination or lack of gemination in various verb positions. It is tempting, although not scientifically sound, to surmise that a language is an antecedent of another when both are spoken in the same region and share one cover term, 'Arabic.' However, this study finds that postulation inaccurate when analysing data in the different language varieties: HCA, MSA, and HSA.

Keywords: Arabic, Saudi, Hejazi, inflection, morphology, autosegmental

---

Introduction

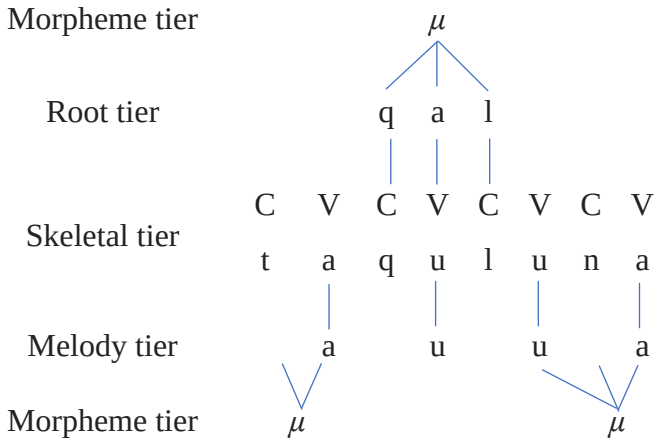
Arabic has a regular morphological system primarily rooted in three sounds [qal] 'say'; however, in some verbs there could be four sounds, [zlzl] 'shake', or five, [ʔnTlq] 'start off', or six, [ʔstxrʒ] 'extract'. In addition to these root segments, some sounds are added to inflect different persons, numbers, or genders. Such regularity allowed Arabic morphologists to devise a tool to help analyze the words of the pre-modern standard Arabic varieties and the Modern Standard Arabic (MSA) into roots and inflections. This tool is called *Almizan Alsarfi*, literally 'the morphology scale' (Alhamalawi, 1911; Qindeel & Yosef, 2008). This scale is referred to as having a 'dummy verb' whose consonants change to produce prescriptively well-structured verbs. It is also used to check the accuracy of those verbs in Arabic, as utilized in Alhamalawi (1911). This is possible because the structures of verbs in these varieties are largely regular. Moreover, due to the nonconcatenative nature of Arabic, the sounds used to derive verbs are usually included within the sounds of the root, or after, or sometimes before. In nonconcatenative morphology, root sounds are not necessarily strung together when adding affixes (Haspelmath & Sims, 2010): for example, the root 'قال' /qala/ say is inflected with the present affix as 'يقول' /jaqulu/.

Arabic as a nonconcatenative language provides a rich field for analysis. One possible reason for this morphological phenomenon is that not all Arabic morphemes are explicit, with the different varieties of Arabic and languages' natural evolution adding to the system's complexity. Such complexity manifests itself through variations of inflections in different varieties of Arabic, as some morphemes vary, and some do not exist in all Arabic varieties. For example, the dual morpheme, -a(ta)# as in [qala/qalata], is not used in most of the modern Arabic varieties. In this study, HSA, the Arabic variety spoken in the Western side of the Arabian Peninsula, in the area known as Hijaz, was analyzed in order to create a list of its inflectional morphemes of person, gender, and number.

In MSA, the list of verbs with all the different persons, genders, and numbers was compiled and then each form was matched with a corresponding form in HSA. An analysis of data in MSA and HSA was conducted to determine the different morphemes in these varieties, and how and to what extent they are conventionalized. After extracting all the morphemes, the roots were analyzed to determine how the root system is represented, and what forms of roots are taken in HSA. In addition, some connections were made with the variety of classical Arabic (henceforth HCA) that was spoken in the Western side of the Arabian Peninsula, in the area known as Hijaz. The word 'hijaz' means dividing object or mountain, in reference to the mountainous terrain separating the Tehama plains that extend along the Red Sea from the elevated region of Najd in the centre of Arabia (Alhamadani, 1884; Hamza, 2002; Muhran, 1980). I reconstructed the HCA examples in this study based on the linguistic information presented by Abdulhameed (1990) and Putten (2017). The absence of previous research tackling the morphology of HSA made it necessary to produce new data for this study. HSA data was collected from native speakers. An autosegmental analysis was implemented to analyze this data to ascertain how sounds and morphemes move and appear or disappear in the morphology of HCA and HSA, which are the Arabic varieties spoken in roughly the same area of the Arabian Peninsula – namely, the Hijaz region, more specifically linked to Makkah and its environs - at different periods. HCA has been spoken since the first Hijri year, around 622 AD, and is the language spoken by the Quraish, the main tribe living in Makkah (Muhran, 1980). HSA, on the

other hand, is the variety of Arabic spoken by the inhabitants of urban Makkah whose ancestors have not lived in the city's suburbs for the past thirty to one hundred years. The varieties of Arabic spoken by people whose forebears did live in Makkah's suburbs are different from HSA and are not considered in this study.

An autosegmental analysis allows us to capture the circumfixation property of affixes (Lieber, 1984; McCarthy, 1981). For example, Arabic speakers add the feminine, present, and plural morphemes to the verb root [qal] 'said' to become [taquluna] 'say'. Note the inflections attached to the beginning or end of the root and how they affect its middle. Consider the autosegmental representation below.



Participants

Four native speakers of HSA were consulted: two males and two females. One male participant is expected to graduate in a year's time and the other three are BA graduates, all of them have study or are studying at Umm Al-Qura University, in Makkah, Saudi Arabia. The participants reported that they and their parents lived in Makkah for their entire childhood, and thereafter for most of their lives. In addition, they all stated that they went to regular public schools and that most of their friends are also from the Hijaz region.

Methodology

Participants received a list of MSA verbs and were requested to give their equivalent examples from the non-standard, عامية Aamiah, the variety of language that they speak. The questions to elicit the target sentences were versions of the following template, filling the blanks with the different MSA verb roots listed below the question template:

Question Template: كيف تقول الكلمة "...." بلهجتك العامية - اللهجة غير الفصحى؟.

Literally translated: How do you say the word "…." in your colloquial dialect, the non-Fusha dialect?

The various MSA verbs represented different variations of the following verb roots:

- [qal] (vowel medial root)
- [sʔl] (glottal stop medial root)
- [xrʒ] (three-consonant root)
- [bdʔ] (glottal stop final root)
- [ʔxð] (glottal stop initial root)
- [zlzl] (four sound root).

For each of these roots, the following forms were given: first-, second-, and third-person; singular, dual, and plural; passive; and the masculine and feminine of each. These forms are given for comparing the forms in HSA with MSA. Answers were recorded, and then phonetically transcribed. Whenever there was confusion or disagreement in pronunciation, the participants were asked to confirm which pronunciation was the correct one to use.

Based on the data obtained from the participants, I wrote derivation rules for every example following the approach in Bisele and Eisele (2002).

Data Analysis

The HSA morphemes for inflecting person, number, and gender on verbs were analyzed in this study by looking into different variations of the verbs: [qal] and [gæl] (vowel medial root); [sʔl] (glottal stop medial root); [xrʒ] (three-consonant root); [bdʔ] (glottal stop final); [ʔxð] and [ʔxd] (glottal stop initial root); and [zlzl] (four-sound root).

Table 1

The roots of the verbs analyzed in this paper for both the MSA and the HSA varieties of Arabic

root	
MSA	HSA
qal ‘say’	gal ‘say’
bdʔ ‘start’	
sʔl ‘ask’	
ʔxð ‘take’	ʔxd ‘take’
xrʒ ‘exit’ v.	
zlzl ‘shake - earthquake’ v.	

In HSA Arabic, the first-person singular marker is a final [t]. There is no gender distinction for the first-person singular; consider examples and rules (1).

(1) <u>Examples</u>

(a) [gˈʊlt] ‘said 1st SG’
(b) [badˈaʔt] ‘started 1st SG’
(c) [xarˈaʒt] ‘exited 1st SG’
(d) [saʔˈalt] ‘asked 1st SG’
(e) [zalzˈalt] ‘shook-as an earthquake 1st SG’
(f) [ʔæxˈət:] ‘took 1st SG’

(1) Rules

1st SG: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2^{1}\}V(C_3)(VC_4)t$

(a) 1st SG vowel-medial root: $C_1V_2C_3 \rightarrow C_1\upsilon C_3t$
(b) 1st SG glottal-final root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t$[2]
(c) 1st SG three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t$
(d) 1st SG three-consonant and glottal medial root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t$
(e) 1st SG four-consonant root: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4t$
(f) 1st SG glottal-initial root: $C_1C_2C_3 \rightarrow C_1æC_2ə(C_3)t$:

In 'a' to 'e' of (1), the [t] sound that represents the morpheme of the first-person singular verbs comes after the last sound of the root. The phonological process of neutralization (Hayes, 2011) affects the voicing quality of neighboring [d] and [t] sounds. When there is a voiced sound following this cluster, both are voiced and when there is not a voiced sound, neither are voiced. When we pronounce this word out of context, the final coda cluster of [d] and [t] do not precede a voiced sound and we pronounce them both as a long [t] at the end of (1. f). Note how each of the other examples of (1) end with a consonant cluster while (1.f) ends with the gemination [t:]. This [t:] is a combination of [d], from the root, and [t] marking the first-person singular where the [d] loses the [+voice] feature and becomes similar to the following voiceless sound [t]. In MSA, however, the same root has an interdental [ð] as the coda. Since this interdental is different from [t] in manner, place, and voicing, neutralization is not effected in these instances (Hayes, 2011).

The rules in this section start with an unnumbered line that demonstrates the general rule of derivation. In (1) for example, the general rule of derivation is for the first-person singular past tense verb in HSA. The parentheses indicate optionality, whereas the braces indicate a choice. As noted above, the general marker for the first-person singular is the final morpheme [t], called the [t] of the speaker in Arabic. The choice of vowel to fill the surroundings of the root segments is based on the root type. For the vowel-medial root, rule (a), for example, there is a [υ] vowel following the first consonant and no other added vowel because there is a vowel in the root, and it is not necessary to separate the clusters of consonants. The vowel is the core of the syllable in Arabic (Ryding, 2014), and since there are none in the roots of examples (b-f), a vowel is inserted in every syllable of these examples.

The gender distinction between the first-person dual and the first-person plural is not present in HAS, contrary to the case with verbs, adjectives, and pronouns in most modern urban Saudi dialects. The first-person plural masculine inflection is [-nə] attached to the last segment of the root. Interestingly, this inflection is generalized and regularized to include the first-person plural[3], masculine, and feminine, as demonstrated in the list below:

[1] V2 indicates the second segment in the root, a vowel in this example
[2] C_3 indicates the third segment in the root, a consonant in this example; the second segment of this root is replaced with another vowel
[3] The dual marker, which appears in HCA and MSA, is lost in most urban varieties of Arabic, and the number system consists of singular and plural, c.f. Ferguson (1959).

(2) Examples

(a) [gˈʊlnə] said 1st DL/PL'
(b) [badˈaʔnə] 'started 1st DL/PL'
(c) [xarˈaʒnə] 'exited 1st DL/PL'
(d) [saʔˈalnə] 'asked 1st DL/PL'
(e) [zalzˈalnə] 'shook - as an earthquake 1st DL/PL'
(f) [ʔaxˈadnə] 'took 1st DL/PL'

1**(2) Rules**

1st DL/PL: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}VC_3(VC_4)$nə

(a) 1st DL/PL vowel-medial: $C_1V_2C_3 \rightarrow C_1\upsilon C_3$nə
(b) 1st DL/PL glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$nə
(c) 1st DL/PL three consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$nə
(d) 1st DL/PL three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$nə
(e) 1st DL/PL four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4$nə
(f) 1st DL/PL glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$nə

Similar to (1), [-nə] exists in all inflections of the dual and plural first-person verbs for the six types of verbs covered in this paper. In addition to the suffix marker [-nə], the differences between inflected verbs in (1) and (2) are in the existence or non-existence of the vowels, and what type of vowels they are. A minor difference in (2) compared to (1) is in the vowels surrounding the glottal-initial root, which is [a] in (2) instead of [æ & ə] in (1). The second-person singular feminine marker is [-ti] as in (3). Again, the geminate /t/ appears in (3.f) for the same reason of (1.f) and shows in all second-person inflections of the verb root, [ʔxd].

(3) Examples

(a) [gˈʊlti] 'said 2nd SG FEM'
(b) [badˈaʔti] 'started 2nd SG FEM'
(c) [xarˈaʒti] 'exited 2nd SG FEM'
(d) [saʔˈalti] 'asked 2nd SG FEM'
(e) [zalzˈalti] 'shook - as an earthquake 2nd SG FEM'
(f) [ʔaxˈat:i] 'took 2nd SG FEM'

(3) Rules

2nd SG FEM: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}V(C_3)(VC_4)$ti

(a) 2nd SG FEM vowel-medial: $C_1V_2C_3 \rightarrow C_1\upsilon C_3$ti
(b) 2nd SG FEM glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ti
(c) 2nd SG FEM three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ti
(d) 2nd SG FEM three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ti
(e) 2nd SG FEM four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4$ti
(f) 2nd SG FEM glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2a(C_3)$t:i

The second-person singular masculine marker is [-t], as shown in (4). The comparison of (3) with (4) shows the similarity between the two sets since they are different only in the additional vowel for the feminine marker.

(4) Examples

(a) [gˈʊlt] ‘said 2nd SG MASC’
(b) [badˈaʔt] ‘started 2nd SG MASC’
(c) [xarˈaʒt] ‘exited 2nd SG MASC’
(d) [saʔˈalt] ‘asked 2nd SG MASC’
(e) [zalzˈalt] ‘shook - as an earthquake 2nd SG MASC’
(f) [ʔæxˈat:] ‘took 2nd SG MASC’

(4) Rules

2nd SG MASC: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}V(C_3)(VC_4)t$

(a) 2nd SG MASC vowel-medial: $C_1V_2C_3 \rightarrow C_1\upsilon C_3t$
(b) 2nd SG MASC glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t$
(c) 2nd SG MASC three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t$
(d) 2nd SG MASC three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3t$
(e) 2nd SG MASC four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4t$
(f) 2nd SG MASC glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2a(C_3)t$:

The second-person and plural markers for both genders have one regularized inflection [-tu]. In (5), all the verbs are inflected with [-tu].

(5) Examples

(a) [gˈʊltu] ‘said 2nd DL/PL’
(b) [badˈaʔtu] ‘started 2nd DL/PL’
(c) [xarˈaʒtu] ‘exited 2nd DL/PL’
(d) [saʔˈaltu] ‘asked 2nd DL/PL’
(e) [zalzˈaltu] ‘shook - as an earthquake 2nd DL/PL’
(f) [ʔaxˈat:u] ‘took 2nd DL/PL’

(5) Rules

2nd DL/PL: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}V(C_3)(VC_4)tu$

(a) 2nd DL/PL vowel-medial: $C_1V_2C_3 \rightarrow C_1\upsilon C_3tu$
(b) 2nd DL/PL glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3tu$
(c) 2nd DL/PL three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3tu$
(d) 2nd DL/PL three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3tu$
(e) 2nd DL/PL four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4tu$
(f) 2nd DL/PL glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2a(C_3)t$:u

As with the third-person, the suffix [-ət] marks the singular feminine, as illustrated in the set of examples below:

(6) Examples

(a) [gˈælət] ‘said 3rd SG FEM’
(b) [bˈadaʔət] ‘started 3rd SG FEM’
(c) [xˈaraʒət] ‘exited 3rd SG FEM’
(d) [sˈaʔalət] ‘asked 3rd SG FEM’
(e) [zalzalˈət] ‘shook - as an earthquake 3rd SG FEM’
(f) [ʔˈæxædət] ‘took 3rd SG FEM’

(6) Rules

3rd SG FEM: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}VC_3(VC_4)$ət

(a) 3rd SG FEM vowel-medial: $C_1V_2C_3 \rightarrow C_1æC_3$ət
(b) 3rd SG FEM glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ət
(c) 3rd SG FEM three consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ət
(d) 3rd SG FEM three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ət
(e) 3rd SG FEM four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4$ət
(f) 3rd SG FEM glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$ət

The masculine inflection for the third-person singular is ∅, as demonstrated by the lists of examples and rules given in (7). As this inflection has no surface realization, it is used in Arabic for producing the root. As several Arabic roots have no vowels, the same pronunciation of the third-person singular is the pronunciation used for the utterance that represents the root. For example, when I explain what a root is used for ‘said 3rd SG MASC’, I use the word [gˈæl].

(7) Examples

(a) [gˈæl] ‘said 3rd SG MASC’
(b) [bˈadaʔ] ‘started 3rd SG MASC’
(c) [xˈaraʒ] ‘exited 3rd SG MASC’
(d) [sˈaʔal] ‘asked 3rd SG MASC’
(e) [zalzal] ‘shook - as an earthquake 3rd SG MASC’
(f) [ʔˈæxæd] ‘took 3rd SG MASC’

(7) Rules

3rd SG MASC: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}VC_3(VC_4)$

(a) 3rd SG MASC vowel-medial: $C_1V_2C_3 \rightarrow C_1æC_3$
(b) 3rd SG MASC glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$
(c) 3rd SG MASC three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$
(d) 3rd SG MASC three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$
(e) 3rd SG MASC four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4$
(f) 3rd SG MASC glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3$

The third-person plural marker for both genders is the suffix [-u] immediately after the last consonant of the root. Consider the examples and rules in (8).

(8) Examples

(a) [gˈælu] ‘said 3rd DL/PL’
(b) [bˈadaʔu] ‘started 3rd DL/PL’
(c) [xˈaraʒu] ‘exited 3rd DL/PL’
(d) [sˈaʔalu] ‘asked 3rd DL/PL’
(e) [zalzalu] ‘shook - as an earthquake 3rd DL/PL’
(f) [ʔˈæxædu] ‘took 3rd DL/PL’

(8) Rules

3rd SG MASC: $C_1\{C_2,V_2\}C_3(C_4) \rightarrow C_1V\{C_2,V_2\}VC_3(VC_4)u$

(a) 3rd SG MASC vowel-medial: $C_1V_2C_3 \rightarrow C_1æC_3u$
(b) 3rd SG MASC glottal-final: $C_1C_2C_3 \rightarrow C_1aC_2aC_3u$
(c) 3rd SG MASC three-consonant root: $C_1C_2C_3 \rightarrow C_1aC_2aC_3u$
(d) 3rd SG MASC three-consonants and glottal medial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3u$
(e) 3rd SG MASC four-consonant: $C_1C_2C_3C_4 \rightarrow C_1aC_2C_3aC_4u$
(f) 3rd SG MASC glottal-initial: $C_1C_2C_3 \rightarrow C_1aC_2aC_3u$

In HSA, the vowels surrounding the medial position segments of the verb roots are person markers, and the suffixes are gender, number, and person markers as shown in Table 2.

Table 2

An illustration of the nonconcatenative morphology in HSA of the past tense verbs derived from the root [xrʒ]

	TENSE (PAST)							GEN, NUM, PER
Three-consonants and glottal medial root	C_1	V	C_2/V_2	V	C_3	V	C_4	
1st SG: $C_1aC_2aC_3t$	x	a	r	a	ʒ	NA	NA	-t
1st DL/PL: $C_1aC_2aC_3nə$	x	a	r	a	ʒ	NA	NA	-nə
2nd SG FEM: $C_1aC_2aC_3ti$	x	a	r	a	ʒ	NA	NA	-ti
2nd SG MASC: $C_1aC_2aC_3t$	x	a	r	a	ʒ	NA	NA	-t
2nd DL/PL: $C_1aC_2aC_3tu$	x	a	r	a	ʒ	NA	NA	-tu
3rd SG FEM: $C_1aC_2aC_3ət$	x	a	r	a	ʒ	NA	NA	-ət
3rd SG MASC: $C_1aC_2aC_3$	x	a	r	a	ʒ	NA	NA	∅
3rd SG MASC: $C_1aC_2aC_3u$	x	a	r	a	ʒ	NA	NA	-u
ROOT								

The general shape of the verb, excluding the root, marks the past tense. This is determined by comparing the past tense verbs, such as those above, with their equivalents in the present and future tense. Compare Tables 2 and 3.

Table 3

An illustration of the nonconcatenative morphology in HSA of the present tense verbs derived from the root [xrʒ]

GEN, NUM, PER									
		TENSE (PRESENT)							
Three-consonants and glottal medial root		C_1	V	C_2/V_2	V	C_3	V	C_4	
1st SG: ʔə$C_1C_2uC_3$u	ʔe	x	NA	r	u	ʒ	NA	NA	NA
1st DL/PL: nə$C_1C_2uC_3$u	ne	x	NA	r	u	ʒ	NA	NA	NA
2nd SG FEM: tə$C_1C_2uC_3$i	te	x	NA	r	u	ʒ	i	NA	NA
2nd SG MASC: tə$C_1C_2uC_3$u	te	x	NA	r	u	ʒ	NA	NA	NA
2nd DL/PL: tə$C_1C_2uC_3$un	te	x	NA	r	u	ʒ	u	NA	NA
3rd SG FEM: tə$C_1C_2uC_3$	te	x	NA	r	u	ʒ	NA	NA	NA
3rd SG MASC: jə$C_1C_2uC_3$	je	x	NA	r	u	ʒ	NA	NA	NA
3rd DL/PL: jə$C_1C_2uC_3$u:	je	x	NA	r	you	ʒ	u:	NA	NA
ROOT									

Also, in Tables 2 and 3, the first, second, and final rows in the content section include information linked by lines to different positions, which are occupied by different segments, of the verbs. This manner of representing the gender, number, person, and tense markers indicates the autonomous nature of these markers. That is to say, the roots of the relevant verbs are in one tier, with the markers in another, thus demonstrating the nonlinear association of the root and the attached markers in a nonconcatenative language.

In MSA and HSA, the unmarked past tense verb endings can be a vowel or a consonant [-t], marking the feminine or the first-person singular for HSA. However, in HCA, a vowel ending for the past tense verb would be marked. In HCA, the unmarked endings include an approximant

consonant [w or j], following and corresponding to the place of the existing vowels, or a long vowel in place of vowels that do not correspond with the two approximants [w and j], as illustrated below.

(9) Examples

(a) [qˈʊltuw] 'said 2nd DL/PL'
(b) [badˈaʔna:] 'started 1st DL/PL'
(c) [xarˈaʒtij] 'exited 2nd SG FEM'

In addition, HCA verbs do not include glottal stops in the rhyme position (Abdulhameed, 1990). This forms part of the root glottal stops. Derivatives of the verb roots, [sʔl] and [bdʔ], are examples for the impermissibility of rhymic[4] glottal stop in HCA, (10).

(10) Examples

(a) [badˈa:na:] 'started 1st DL/PL'
(b) [sˈa:lu] 'asked 3rd DL/PL'

This linguistic phenomenon exists in some current western Saudi Arabic varieties, excluding HSA.

Vowel harmony affects vowels of the inflections surrounding and within the roots of all the verbs in the active voice for MSA. Vowel harmony applies to all the verbs in the active voice, in both MSA and HSA, and most verbs in the passive voice of HSA. As regards HSA, the passive voice marker is the prefix [in-] or [at:a-] attached to the respective verbs to make the subject of the verb change from the agent or experiencer to the patient or theme. This changes the voice of the sentence from active to passive. Because of this, most structures of the verbs we considered in HSA retain vowel harmony of the active voice verbs in the passive forms. Conversely, in MSA, when verbs are in the passive voice, vowel harmony does not work since the marker of the passive voice is regularly structured as [C1uC2iC3], as in [sˈuʔilə] ask.PFV-3.SG.M 'it, masculine, was asked' and [ʔˈuxiðə] take.PFV-3.SG.M 'it, masculine, was taken'.

Note that for the vowel-medial verbs, the passive voice structure is [C_1iC_2ə] as in [qˈilə] say.PFV-PASS-3.SG.M 'it, masculine, was said'. This structure is different from the previous rule of structuring the passive voice because vowel clusters are impermissible in MSA. If we apply the rule [$C_1uC_2iC_3$] to the active voice structure of a vowel-medial root verb and replace the second consonant of the rule with the second vowel of the vowel-medial root verb, the result would be a three-vowel cluster as [$C_1uV_2iC_3$*]. As regards the non-vowel root verbs, the medial consonant [xrʒ] 'root of exit' is geminated to have the structure [$C_1uC{:}_2iC_3$] for the passive voice form of the verb. Table 4 below summarizes some passive verb forms in MSA and HSA.

[4] Rhymic sounds are the ones occupying the rhyme position.

Table 4

Summary of some passive verb forms in MSA and HSA

	MSA	HSA			MSA	HSA	
FEM	qˈilət[5]	ingˈalət	say.PFV-3.SG.F.PSV	FEM	bˈudiʔət	inbˈadaʔət[6]	start.PFV-3.SG.F.PSV
MASC	qˈilə	ingˈal	say.PFV-3.SG.M.PSV	MASC	bˈudiʔə	inbˈadaʔ	start.PFV-3.SG.M.PSV
FEM	sˈuʔilət	insˈaʔalət	ask.PFV-3.SG.F.PSV	FEM	ʔˈuxiðət	ʔatta:xədət	take.PFV-3.SG.F.PSV
MASC	sˈuʔilə	insˈaʔal	ask.PFV-3.SG.M.PSV	MASC	ʔˈuxiðə	ʔatta:xəd	take.PFV-3.SG.M.PSV
FEM	xur:iʒət	xur:iʒət[7]	exit.PFV-3.SG.F.PSV	FEM	zˈulzilət	zˈulzilət	shake.PFV-3.SG.F.PSV
MASC	xur:iʒə	xur:iʒ	exit.PFV-3.SG.M.PSV.PSV	MASC	zˈulzilə	zˈulzil	shake.PFV-3.SG.M.PSV

The structure of the passive voice in HCA demonstrates a further difference. As referred to above, in MSA, the method of deriving the passive form from the three-consonant root is to geminate the medial consonant as in the passive voice forms of the verb rooted as [xrʒ]. In HCA, such gemination is marked, and the unmarked passive form structure for the three consonant root verbs would be [$C_1uC_2iC_3$ə]. Consider the examples below.

<u>(11) Examples</u>

(a) [xuriʒət] ‘made exited FEM SG’
(b) [xuriʒə] ‘made exited MASC SG’

Interestingly, this contradicts the gemination rule, marking off some Semitic languages: Chaha, a Semitic Ethiopian language, and Modern Hebrew (McCarthy, 1986). According to this rule, gemination in an ancestral variety is degeminated in a successor variety of the language. Another noteworthy difference in HCA exists in the three-consonant root verbs. In such verbs, the vowel in the onset position, which follows the first consonant, is long. See below examples. This onset-vowel long feature occurs with the active voice.

<u>(12) Examples</u>

(a) [xa:rˈaʒtij] ‘exited 2nd SG FEM’
(b) [xˈa:raʒuw] ‘exited 3rd DL/PL’

[5] These are examples; the forms attached as suffixes are usually the same as the active ones.
[6] The participants were unsure about the passive form of [bdʔ]. Some used the prefix [in-] which can be influenced by determining the passive of [qal] and [sʔl] before.
[7] In the absence of an HSA version, native speakers may use passive voice verbs from MSA, as in the derivations of [xrʒ] and [zlzl].

Summary of the Study

In this paper, inflections of person, number, and gender when inflecting the past tense forms of HSA verbs have been demonstrated, analyzed, and discussed. The verb tense marker was found to be represented differently than the person, gender, and number markers, as well as affecting the entire verb, while person, gender, and number inflections were represented as either suffixes or both suffixes and prefixes.

The past tense verbs and the passive voice forms in HCA differed from the corresponding forms of MSA and HSA. Additional approximant consonants [j, w] at the ends of the verbs, and gemination or lack of gemination in some positions of the verbs, represent these differences.

It is worth noting that HCA is not used natively today: the samples of HCA used in this paper are only reconstructions based on an old manuscript written in that form. It is tempting to hypothesize that one language is an antecedent of another when both are spoken in the same region and share the cover term 'Arabic'. However, determining whether HSA is indeed a descendant of HCA would require further data collection, reconstruction, and analysis to deliver more definitive conclusions.

Bio

Maisarah M. Almirabi obtained his Ph.D. in Applied Linguistics at Ball State University in Muncie, Indiana, USA in 2019. He obtained his master's degree in Linguistics at the University of New Mexico in Albuquerque, New Mexico, USA in 2013. He obtained his bachelor's degree in the English Language at Umm Al-Qura University, Makkah, Saudi Arabia, in 2009. He is currently an Assistant Professor and the Chairperson of the Department of English at Umm Al-Qura University (the main branch) in Makkah, Saudi Arabia. His research focuses on cognitive linguistics, Conceptual Metaphor Theory, pragmatics, morphology and syntax, phonology, and language documentation and revitalization. Further information can be found at: https://uqu.edu.sa/Profile/mmmirabi.

References

Abdulhameed, M. (1990). *Sharh Qatr Alnada wa Bal Alsada-Ibn Hisham Alansari*. Beirut, Lebanon: Dar Alkhair.

Alhamadani, A. (1884). *Sifat Jazirat Alarab*. Leiden, Netherlands: Brill Publisher.

Alhamalawi, A. (1911). *Shatha Alurf fi Fan Alsaraf.* Cairo, Egypt: AlmaTbaa Alamiriah.

Eisele, J. C., & Bisele, J. C. (2002). The linguistic representation of Arabic morphology. *al-'Arabiyya*, 1-59.

Ferguson, C. A. (1959). The Arabic Koine. *Language*, 35(4), 616-630.

Hamza, F. (2002). *Qalb Jazirat Alarab. Maktabat Althaqafah Aldiniah*. Cairo, Egypt.

Haspelmath, M., & Sims, A. (2010). Understanding Morphology. London: Hodder Education. 34-36.

Hayes, B. (2011). *Introductory phonology* (Vol. 32). West Sussex, United Kingdom: John Wiley & Sons.

Lieber, R. (1984). Consonant gradation in Fula: An autosegmental approach. *Language sound structure*, 329-345.

McCarthy, J. J. (1981). A prosodic theory of nonconcatenative morphology. *Linguistic inquiry*, *12*(3), 373-418.

McCarthy, J. J. (1986). Lexical phonology and nonconcatenative morphology in the history of Chaha. *Revue québécoise de linguistique*, *16*.

Muhran, M. (1980). *Tarikh Alarab Alqadim*. Alexandria, Egypt: Dar Almaarifa Aljami'iah.

Putten, M. (2017). The development of the triphthongs in Quranic and Classical Arabic. *Arabian Epigraphic Notes*, *3*, 47-74.

Qindeel, S., & Yosef, A. (2008). *Ma'an Lidirasat Qawa'id Alnahw Walsarf*. Almuhandisin, Egypt: Dar NahDhat MaSr.

Ryding, K. C. (2014). *Arabic: A linguistic introduction*. Cambridge, United Kingdom: Cambridge University Press.

Appendix

root	person	number	gender	MSA	HSA	root	person	number	gender	MSA	HSA
qal/gæl (vowel medial)	1st	SG	FEM	qˈʊltu.	gˈʊlt	bdʔ (glottal stop final)	1st	SG	FEM	badˈaʔtu.	badˈaʔt
			MASC	qˈʊltu.	gˈʊlt				MASC	badˈaʔtu.	badˈaʔt
		DL	FEM	qˈʊlnæ	gˈʊlnə			DL	FEM	badˈaʔna	bɪdˈɪʔnə
			MASC	qˈʊlnæ	gˈʊlnə				MASC	badˈaʔna	bɪdˈɪʔnə
		PL	FEM	qˈʊlnæ	gˈʊlnə			PL	FEM	badˈaʔna	bɪdˈɪʔnə
			MASC	qˈʊlnæ	gˈʊlnə				MASC	badˈaʔna	bɪdˈɪʔnə
	2nd	SG	FEM	qˈʊlti	gˈʊlti		2nd	SG	FEM	badˈaʔti	badˈaʔti
			MASC	qˈʊltə	gˈʊlt				MASC	badˈaʔtə	badˈaʔt
		DL	FEM	qʊltˈunːə	gˈʊltu			DL	FEM	badaʔtˈʊnːə	badˈaʔtu
			MASC	qʊltumˈæ	gˈʊltu				MASC	badaʔtʊmˈa	badˈaʔtu
		PL	FEM	qʊltˈunːə	gˈʊltu			PL	FEM	badaʔtˈʊnːə	badˈaʔtu
			MASC	qˈʊltum	gˈʊltu				MASC	badˈaʔtʊm	badˈaʔtu
	3rd	SG	FEM	qalˈət	gˈælət		3rd	SG	FEM	bˈadaʔət	bˈɪdʔət
			MASC	qˈalə	gˈæl				MASC	bˈadaʔə	bˈɪdɪʔ
		DL	FEM	qˈʊlnə	gˈælu			DL	FEM	badaʔatˈa	bˈɪdʔu
			MASC	qalˈæ	gˈælu				MASC	badaʔˈa	bˈɪdʔu
		PL	FEM	qˈʊlnə	gˈælu			PL	FEM	badˈaʔnə	bˈɪdʔu
			MASC	qˈalu	gˈælu				MASC	bˈadaʔu	bˈɪdʔu
passive		FEM		qˈilət[8]	ingˈalət	passive		FEM		bˈudíʔət	inbˈadaʔət
		MASC		qˈilə	ingˈal			MASC		bˈudíʔə	inbˈadaʔ

root	person	number	gender	MSA	HSA	root	person	number	gender	MSA	HSA
sʔl (glottal stop medial)	1st	SG	FEM	saʔˈaltu.	Saʔˈalt	ʔxð/ʔxd (glottal stop initial)	1st	SG	FEM	ʔæxˈəðtu.	ʔæxˈət:
			MASC	saʔˈaltu.	Saʔˈalt				MASC	ʔæxˈəðtu.	ʔæxˈət: [9]
		DL	FEM	saʔˈalna	Saʔˈalnə			DL	FEM	ʔæxˈəðna	ʔæxˈədnə
			MASC	saʔˈalna	Saʔˈalnə				MASC	ʔæxˈəðna	ʔæxˈədnə
		PL	FEM	saʔˈalna	Saʔˈalnə			PL	FEM	ʔæxˈəðna	ʔæxˈədnə
			MASC	saʔˈalna	Saʔˈalnə				MASC	ʔæxˈəðna	ʔæxˈədnə
	2nd	SG	FEM	saʔˈalti	Saʔˈalti		2nd	SG	FEM	ʔæxˈəðti	ʔæxˈət:i
			MASC	saʔˈaltə	Saʔˈalt				MASC	ʔæxˈəðtə	ʔæxˈət:
		DL	FEM	saʔaltˈunːə	Saʔˈaltu			DL	FEM	ʔæxəðtˈu.nːə	ʔæxˈət:u
			MASC	saʔaltumˈa	Saʔˈaltu				MASC	ʔæxəðtumˈæ	ʔæxˈət:u
		PL	FEM	saʔaltˈunːə	Saʔˈaltu			PL	FEM	ʔæxəðtˈu.nːə	ʔæxˈət:u
			MASC	saʔˈaltum	Saʔˈaltu				MASC	ʔæxˈəðtu.m	ʔæxˈət:u
	3rd	SG	FEM	sˈaʔalət	Sˈaʔalət		3rd	SG	FEM	ʔæxˈæðət	ʔˈæxædət
			MASC	sˈaʔalə	Sˈaʔal				MASC	ʔæxˈæðə	ʔˈæxæd
		DL	FEM	saʔˈalnə	Sˈaʔalu			DL	FEM	ʔæxæðætˈæ	ʔˈæxædu
			MASC	saʔalˈa	Sˈaʔalu				MASC	ʔæxæðˈæ	ʔˈæxædu
		PL	FEM	saʔˈalnə	Sˈaʔalu			PL	FEM	ʔæxˈəðnə	ʔˈæxædu
			MASC	sˈaʔalu	Sˈaʔalu				MASC	ʔˈæxæðu	ʔˈæxædu
passive		FEM		sˈuʔilət	insˈaʔalət	passive		FEM		ʔˈuxiðət	inʔˈæxædət
		MASC		sˈuʔilə	insˈaʔal			MASC		ʔˈuxiðə	inʔˈæxæd

root	person	number	gender	MSA	HSA	root	person	number	gender	MSA	HSA
xrʒ (three consonant root)	1st	SG	FEM	xarˈaʒtu.	xarˈaʒt	zlzl (four sound root)	1st	SG	FEM	zalzˈaltu.	zalzˈalt
			MASC	xarˈaʒtu.	xarˈaʒt				MASC	zalzˈaltu.	zalzˈalt
		DL	FEM	xarˈaʒna	xarˈaʒnə			DL	FEM	zalzˈalna	zalzˈalnə
			MASC	xarˈaʒna	xarˈaʒnə				MASC	zalzˈalna	zalzˈalnə
		PL	FEM	xarˈaʒna	xarˈaʒnə			PL	FEM	zalzˈalna	zalzˈalnə
			MASC	xarˈaʒna	xarˈaʒnə				MASC	zalzˈalna	zalzˈalnə
	2nd	SG	FEM	xarˈaʒti	xarˈaʒti		2nd	SG	FEM	zalzˈalti	zalzˈalti
			MASC	xarˈaʒtə	xarˈaʒt				MASC	zalzˈaltə	zalzˈalt
		DL	FEM	xaraʒtˈunːə	xarˈaʒtu			DL	FEM	zalzaltˈunːə	zalzˈaltu
			MASC	xarˈaʒtumˈa	xarˈaʒtu				MASC	zalzaltumˈa	zalzˈaltu
		PL	FEM	xaraʒtˈunːə	xarˈaʒtu			PL	FEM	zalzaltˈunːə	zalzˈaltu
			MASC	xarˈaʒtu	xarˈaʒtu				MASC	zalzˈaltum	zalzˈaltu
	3rd	SG	FEM	xˈaraʒət	xˈaraʒət		3rd	SG	FEM	zalzalˈət	zalzalˈət
			MASC	xˈaraʒə	xˈaraʒ				MASC	zˈalzalə	zˈalzal
		DL	FEM	xaraʒatˈa	xˈaraʒu			DL	FEM	zalzalətˈa	zˈalzalu
			MASC	xaraʒˈa	xˈaraʒu				MASC	zˈalzala	zˈalzalu
		PL	FEM	xarˈaʒnə	xˈaraʒu			PL	FEM	zalzˈalnə	zˈalzalu
			MASC	xˈaraʒu	xˈaraʒu				MASC	zˈalzalu	zˈalzalu
passive		FEM		xurːiʒət	xurːiʒət	passive		FEM		Zˈulzilət	Zˈulzilət
		MASC		xurːiʒə	xurːiʒ			MASC		Zˈulzilə	Zˈulzil

8 These are examples and usually the forms attached as suffixes are the same as the active ones

9 place assimilation then voicing assimilation and gemmation

root	person	number	gender	HCA	root	person	number	gender	HCA
qal/gæl (vowel medial)	1st	SG	FEM	qˈʊltuw	bdʔ (glottal stop final)	1st	SG	FEM	badˈa:tuw
			MASC	qˈʊltuw				MASC	badˈa:tuw
		DL	FEM	qˈʊlnæ:			DL	FEM	badˈa:na
			MASC	qˈʊlnæ:				MASC	badˈa:na
		PL	FEM	qˈʊlnæ:			PL	FEM	badˈa:na
			MASC	qˈʊlnæ:				MASC	badˈa:na
	2nd	SG	FEM	qˈʊltij		2nd	SG	FEM	badˈa:ti
			MASC	qˈʊltæ:				MASC	badˈa:tæ:
		DL	FEM	qʊltˈun:æ:			DL	FEM	bada:tˈʊn:æ:
			MASC	qʊltumˈæ:				MASC	bada:tʊmˈa
		PL	FEM	qʊltˈun:æ:			PL	FEM	bada:tˈʊn:æ:
			MASC	qˈʊltum				MASC	badˈa:tʊm
	3rd	SG	FEM	qalˈət		3rd	SG	FEM	bˈada:ət
			MASC	qˈalæ:				MASC	bˈada:æ:
		DL	FEM	qˈʊlnæ:			DL	FEM	bada:atˈa
			MASC	qalˈæ:				MASC	bada:ˈa
		PL	FEM	qˈʊlnæ:			PL	FEM	badˈa:næ:
			MASC	qˈaluw				MASC	bˈada:uw
passive		FEM		qˈilət	passive		FEM		bˈudi:ət
		MASC		qˈilæ:			MASC		bˈudi:æ:
root	person	number	gender	HCA	root	person	number	gender	HCA
sʔl (glottal stop medial)	1st	SG	FEM	sa:ˈaltuw	ʔxð/ʔxd (glottal stop initial)	1st	SG	FEM	ʔæxˈəðtuw
			MASC	sa:ˈaltuw				MASC	ʔæxˈəðtuw
		DL	FEM	sa:ˈalna:			DL	FEM	ʔæxˈəðna:
			MASC	sa:ˈalna:				MASC	ʔæxˈəðna:
		PL	FEM	sa:ˈalna:			PL	FEM	ʔæxˈəðna:
			MASC	sa:ˈalna:				MASC	ʔæxˈəðna:
	2nd	SG	FEM	sa:ˈaltij		2nd	SG	FEM	ʔæxˈəðtij
			MASC	sa:ˈaltæ:				MASC	ʔæxˈəðtæ:
		DL	FEM	sa:altˈun:æ:			DL	FEM	ʔæxəðtˈu.n:æ:
			MASC	sa:altumˈa:				MASC	ʔæxəðtumˈæ:
		PL	FEM	sa:altˈun:æ:			PL	FEM	ʔæxəðtˈu.n:æ:
			MASC	sa:ˈaltum				MASC	ʔæxˈəðtu.m
	3rd	SG	FEM	sˈa:alət		3rd	SG	FEM	ʔæxˈæðət
			MASC	sˈa:alæ:				MASC	ʔæxˈæðæ:
		DL	FEM	sa:ˈalnæ:			DL	FEM	ʔæxæðætˈæ:
			MASC	sa:alˈa:				MASC	ʔæxæðˈæ:
		PL	FEM	sa:ˈalnæ:			PL	FEM	ʔæxˈəðnæ:
			MASC	sˈa:aluw				MASC	ʔˈæxæðuw
passive		FEM		sˈu:ilət	passive		FEM		ʔˈuxiðət
		MASC		sˈu:ilæ:			MASC		ʔˈuxiðæ:
root	person	number	gender	HCA	root	person	number	gender	HCA
xrʒ (three consonant root)	1st	SG	FEM	xa:rˈaʒtuw	zlzl (four sound root)	1st	SG	FEM	zalzˈaltuw
			MASC	xa:rˈaʒtuw				MASC	zalzˈaltuw
		DL	FEM	xa:rˈaʒna:			DL	FEM	zalzˈalna:
			MASC	xa:rˈaʒna:				MASC	zalzˈalna:
		PL	FEM	xa:rˈaʒna:			PL	FEM	zalzˈalna:
			MASC	xa:rˈaʒna:				MASC	zalzˈalna:
	2nd	SG	FEM	xa:rˈaʒtij		2nd	SG	FEM	zalzˈaltij
			MASC	xa:rˈaʒtæ:				MASC	zalzˈaltæ:
		DL	FEM	xa:raʒtˈun:æ:			DL	FEM	zalzaltˈun:æ:
			MASC	xa:rˈaʒtumˈa:				MASC	zalzaltumˈa:
		PL	FEM	xa:raʒtˈun:æ:			PL	FEM	zalzaltˈun:æ:
			MASC	xa:rˈaʒtuw				MASC	zalzˈaltum
	3rd	SG	FEM	xˈa:raʒət		3rd	SG	FEM	zalzalˈət

			MASC	xˈa:raʒæ:				MASC	zˈalzalæ:
		DL	FEM	xa:raʒatˈa:			DL	FEM	zalzalətˈa:
			MASC	xa:raʒˈa:				MASC	zˈalzala:
		PL	FEM	xa:rˈaʒnæ:			PL	FEM	zalzˈalnæ:
			MASC	xˈa:raʒuw				MASC	zˈalzaluw
passive		FEM		xuriʒət	passive		FEM		Zˈulzilət
		MASC		xuriʒæ:			MASC		Zˈulzilə